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STUDY OF 1302 OBSTETRIC CASES: TWO MATERNAL DEATHS

LEE MONROE MILES, B.S., M.D., F.A.C.S.
The Lovelace Clinic, Albuquerque, N. M.

(Read Before the Obstetrics and Gynecology Section of the Panhandle District Medical Society, Amarillo, Texas, April 14, 1937.)

The purposes of this study are two: an inventory of our obstetric work from which to learn wherein our results may be improved; and to stimulate others to make similar studies and reports. This report covers 5½ years, from October 1, 1931, to April 1, 1937. It is a report of the obstetric work of 4 physicians.

During the past few years there has been a marked increase in interest in the subject of maternal mortality and morbidity. As the result of this increased interest many detailed studies covering large series of cases have been published. So far as I know no cases have been reported strictly comparable to this series. Practically all of the previous reports have come from large medical centers and from teaching hospitals. The cases, here presented, are from the private practice of a group of physicians in a small community.

TABLE 1

	Hospital	Home	Total
Dr. W. R. Lovelace	95	5	100
Dr. E. T. Lassetter	72	177	249
Dr. J. D. Lamon, Jr.	75	53	128
Dr. L. M. Miles	513	312	825
Totals	755	547	1302

The population of New Mexico presents an interesting problem because of the admixture of Indian blood in the native stock. This type is commonly referred to as Mexican or Spanish American. For purposes of more accurate classification this group is listed as Spanish-Indian, and constitutes over 50% of the population of New Mexico. Those of pure European origin are called Caucasian. It is of more than passing interest from an anthropological standpoint to report that all of the babies born to the Spanish-Indian group have a well developed Mongolian birth mark.

TABLE 2

Races	Hospital	Home	Total
Caucasian	644	336	980
Spanish-Indian	103	198	301
Colored	8	13	21
Totals	755	547	1302

In a population over 50% of whom are Catholic and among whom large families are the rule, it is interesting to note the great preponderance of para i and para ii. This is probably due to the relatively large number of Caucasions and small number of Spanish-Indians, but is also due to the fact that even this element of the population are willing to have a doctor for the first child and a midwife for the other deliveries. It is also interesting that during the years when federal emergency relief was in force, the number of deliveries among the Spanish-Indians increased enormously. Since relief has been discontinued they have returned to the mid-wives.

TABLE 3

	Hospital	Home	Total
Para i	445	114	559
Para ii	194	131	325
Para iii	54	112	166
Para iv	33	91	124
Para v and up	39	99	138
Totals	765	547	1312
Twins	10		

The 4 members of the clinic who are doing deliveries have adopted a uniform technic—the Mayes' with one variation. When the patient is prepared 15 c.c. of 5% mercurochrome are instilled into the vagina. This instillation is repeated immediately before each vaginal examination. We believe this is a decided advantage over an injection some time before examination as by our method there is still a pool of mercurochrome in the vagina and the examining fingers are surrounded by the fluid

antiseptic which is also carried by the fingers into the cervix.

All patients spontaneously delivered receive 1 daily vaginal instillation of 5% mercurochrome and all operative cases receive 2 daily instillations during the puerperium. Our patients are absolutely odorless, and if this routine accomplished nothing more than the abolition of odors, it is eminently worthwhile. This routine is carried out in home deliveries.

TABLE 4

Type of Delivery in Hospitals	
Spontaneous vertex	428
Spontaneous breech	22
Low forceps	209
Mid forceps	20
Kielland forceps with rotation	34
Breech extraction	9
Version and extraction	7
Cesarean section	36
Total	765
Type of Delivery in Home	
Spontaneous vertex	537
Spontaneous breech	5
Low forceps	5
Total	647

Of the 755 women delivered in hospitals, 445 had spontaneous deliveries while 310 had instrumental assistance. This may seem to indicate a radical trend in obstetrics but it will be noted that in 209 cases the interference was limited to application of forceps after the head had reached the perineum. I believe that there is no contra-indication for the application of forceps with the fetal head in this location save lack of ordinary skill and care on the part of the obstetrician, or a complete lack of proper aseptic surroundings. Mid-forceps were applied in 20 instances and were for strict obstetric indications.

Kielland forceps were applied in obstructed occiput-posterior or occiput-transverse presentations. Applied in the manner originally described for their use in these cases the Kielland forceps are ideal for rotation and delivery of the head. In 2 instances satisfactory application could not be made and the babies were delivered successfully by version and extraction. These 2 cases constituted 2 of the 3 cases in which version and extraction were resorted to. Impacted breech presentations were encountered in 9 instances and the impaction was decomposed and the foetuses were delivered by extraction.

Left oblique episiotomy was done 211 times. In each instance repair was made using No. 2-20-day gut uniting the cut tissues in layers, restoring an anatomicaly and functional perineum. The technic we use finishes up the skin of the perineum with a continuous intra-dermal suture leaving a scarcely discernable line to mark the site of incision. Only 1 repair broke down requiring secondary suture on the 6th day. Elective gynecologic repair of previous lacerations has been performed in cases in which it was indicated and desired with satisfactory results.

Lacerations of varying degree occurred in 106 cases. Major lacerations are repaired with the same technic as for episiotomy; all lacerations, however small, are repaired.

Tho our practice in the hospitals may seem to be radical, our practice in the home is conservative in the extreme. Out of 547 women delivered at home, only 3 cases of interference were practiced.

TABLE 5

Maternal Morbidity in Hospital Deliveries from all Causes.

Afebrile	662
Febrile	93
Excluding cesarean section—corrected	57 or 7.9%

Standard of morbidity: temperature of 99.8° on any 2 days exclusive of first 24 hours following delivery.

This table shows the occurrence of febrile reaction in all hospital deliveries and the standard of morbidity on which the figures were based. Of these febrile cases only 2 were at all inconvenienced. One patient, following a low forceps delivery, ran a completely afebrile course, was dismissed on the 10th day and developed thrombophlebitis of the left leg. The other delivered spontaneously, without vaginal examinations, ran temperature for 10 days never above 99° and on the 11th day developed thrombophlebitis. No patients died from infection.

Of the home deliveries no reliable morbidity statistics can be given. Patients were seen daily, usually in the mornings. Only 2 developed sepsis sufficient to prolong the puerperium. One patient was delivered at home by forceps after 2 native midwives had been rubbing kitchen grease into the vagina to expedite delivery. She was ill for about 18 days but not seriously. The baby was a still-born monster of the classification of craniorachischisis.

The other patient had a spontaneous delivery without interference and ran a low grade fever for 21 days. Three hospital patients and

2 delivered at home developed acute salpingitis, from the gonococcus, during the puerperium. Treated conservatively, all recovered without surgery.

Obstetrical analgesia: During the first 2 years covered by this report we used, as we had been using for several years, a combination of ether, oil and quinin, either plain or combined with a barbiturate, by rectum for producing analgesia. This method has proven to be fairly satisfactory. For the past 3½ years we have been using pento-barbital-sodium in doses of gr. vi to gr. viiss by mouth. This is given early in the 1st stages of labor without retarding the progress of labor. On the contrary, we feel that dilatation usually takes place more readily under the influence of this drug than without it. While some patients become very restless we feel that it is because of insufficient doses of the barbiturate. In some cases we have reinforced the action of the pento-barbitai-sodium with small doses of morphine or dilaudid. Ether has been used for anaesthesia for actual delivery. Following the preliminary analgesic, ether administration is easy, very little being required, and the patients are rarely nauseated. This method has been highly satisfactory from the standpoint of the patient, the nurses and the obstetrician.

Pituitrin is a much abused and also a much maligned drug. We use pituitrin routinely in doses of 1 c.c. administered immediately after the delivery of the baby. The placenta usually is delivered in 5-10 minutes and there is very little bleeding.

During labor we never use full doses of pituitrin in any patient, but we do frequently resort to small doses—minims iii—in multiparae with sluggish contractions, with the cervix dilated 3 cm. or more and with normal sized babies and normal presentation and normal pelvis. Occasionally we use pituitrin in primigravidae in the same small doses and with the same indications and conditions. We have never observed harm to either mother or child when used in this small amount.

Complications of Pregnancy: Prenatal care has been stressed in all our work. Five years ago many of our deliveries in the homes were of the "catch-as-catch-can" variety, the patient having no care during pregnancy and calling for medical assistance only when labor began. For the past 2 years we have been refusing to deliver women who have not had pre-natal care unless the pateint can go to the hospital.

Our routine is to examine each patient once every 4 weeks up to the 6th month, every 2 weeks from then to the last month, and then every week until delivery.

TABLE 6
Complications of Pregnancy

Hyperemesis gravidarum	5
Toxemia, preeclamptic	28
Eclampsia	4
Nephritic toxemia	5
Acute pyelitis	13
Perinephritic abscess	1

Pernicious vomiting of pregnancy of a degree sufficient to require hospitalization occurred in 5 patients. All were carried through to term with live babies. Mild degrees of toxemia occurred frequently; but 28 patients required hospitalization for this. These patients were treated conservatively as long as the condition improved or did not increase in severity. Labor was induced when fetuses were viable in cases that did not respond to treatment. The same method was used in the nephritic group. Eclampsia developed in only 1 patient under our care during pregnancy. The other 3 cases were brought to the hospital after a number of convulsions had occurred at home. One of this latter group accounted for 1 of the 2 deaths in this series of cases. Mild cases of pyelitis were treated medically; but 13 were admitted to the hospital and treated by catheterizing the ureters with indwelling catheters. Three of these patients had premature labors before viability of the fetuses. The others went to full term and delivered living babies. One case of perinephritic abscess was operated upon in the 6th month and completed her pregnancy without further trouble. She has since delivered normally.

TABLE 7
Induction of Labor

Indication		Method	
Post-maturity	17	Castor oil and quinin	4
Toxemia	19	Castor oil, quinin and pituitrin	12
Term	11	Pituitrin alone	10
Dead fetus	1	Rupture of membrane and pituitrin	22

In 48 cases induction of labor was indicated and practiced. The indications and methodss which were successful are shown in table 7. The method which did not fail in a single instance was rupture of the membranes followed by administration of pituitrin in 3 minims dos-

es repeated every half hour until labor was well established. Patients with toxemia and high blood pressure were given pitocin in place of pituitrin. Usually 3 doses were sufficient and in several cases 1 only was used. Simple rupture of the membranes is usually followed by a latent period before labor ensues, but by the combined practice of rupture of the membranes and giving one of the pituitary preparations this latent period was either absent or very short. No undesirable effects were noted in either mother or child and labor in all cases was of less than average duration.

Complications of labor other than those affecting the method of delivery of the child were:

Placenta previra occurred in 3 patients; 2 of these were marginal and rupture of the membranes brought the labor to a satisfactory conclusion for the mothers in both instances; one baby was still-born; the 3rd case was nearly central placenta previa for which cesasarean section was performed. Mother and child both made uneventful recoveries.

Abruptio-placenta complicated 1 home delivery. Conservative treatment resulted in a good recovery for the mother but the child was still-born.

Post-partum hemorrhage occurred in 5 cases, 3 of whom were given transfusions with good recovery. One hemorrhage occurred at 3 weeks post-partum and persisted so that a diagnostic curettage was performed and the uterine cavity packed. Bleeding did not recur. Microscopic examination of the uterine scrapings did not reveal retained placenta nor chorioepithelioma.

Acute puerperal inversion of the uterus with hemorrhage occurred once. The patient was a primipara who had a labor lasting only 3 hours characterized by frequent and violent pains. Delivery was spontaneous. Hemorrhage was terrific and examination revealed an inverted uterus. It was manually replaced immediately and the vagina packed with gauze. The patient was given a transfusion of whole blood. Recovery was prompt and afebrile.

Abnormally adherent placenta was encountered 9 times. Manual removal was done and all patients ran completely afebrile courses.

Ruptured uterus occurred once. This patient ,a para vi, was brought from the country after being in labor for 30 hours. The child was lying in R. O. P., the membranes were ruptured and the country physician had applied forceps and attempted version. A well developed contraction ring was present. The child was dead. Under ether anesthesia Kielland forceps were applied without great difficulty or force and the head was rotated. Considerable traction had to be used to effect delivery and as the shoulders were delivered a piece of omentum was seen. The placenta was delivered, the omentum was ligated and excised and a hysterectomy performed. The patient ran a febrile course but was dismissed, well, in 23 days.

Cesarean section was resorted to as the best method of delivery in 36 cases—total incidence of 2.76%. Nine sections were repeated at subsequent pregnancies. Three patients who had previous sections were delivered normally in the 2nd pregnancies.

TABLE 8

Indications for Cesarean Section

Contracted pelvis	9
Disproportion	10
Previous cesarean	9
Placenta previa	1
Toxemia	2
Amputated cervix and scar tissue	2
Ventral hernia recently repaired	1
Undilated cervix	1
Pelvic tumor	1
Trial of labor	23

Vaginal examinations during Labor

Number of examinations	Number of patients
0	8
1	11
2	5
3	5
4	4
5	2
8	1

TABLE 9

Type of Cesarean Section

Classical	4
DeLee; low with vertical uterine incision	3
Low, with transverse uterine incision	22
Extra peritoneal	4
Vaginal	1
With hysterectomy	2
Tubes sectioned and ends buried	10

TABLE 10

Morbidity Following Cesarean Section

Febrile	22	Maternal mortality	0
Afebrile	14	Fetal mortality	2

One point to be emphasized in the tabulation is the large number of paients given trial of labor and the number of examinations made vaginally. We feel that by adherence to the Mayes' technic for vaginal examinations that we do not increase the risk of infection. Consequently by trial of labor we do not mean a few uterine contractions but a thorough test of active labor the progress of which is carefully checked by vaginal examinations. One case was in labor 24 hours after rupture of the membranes. When no progress was made we did not hesitate to do a section. Three other

cases had previous attempts at forcep delivery and version. This method we apply only to those cases that are constantly under our own care. Patients brought from the country after hours of labor and un-aseptic examinations are not as a rule sectioned. One exception only have we made to this routine: one patient with an absolutely contracted pelvis was sectioned twice—once by extraperitoneal section and the 2nd time by cesarean section and hysterectomy.

No standard used today is satisfactory in determining morbidity following cesarean sections. For want of a standard the same rigid requirements by which the vaginal deliveries were judged were used on the abdominal delivery cases. By this standard 22 patients were listed as running a febrile course and 14 as afebrile. A more reasonable standard would be to exclude from reckoning the first 48 or even 72 hours following section. By such a standard the figures would be reversed. Judged by number of days in the hospital following section 20 patients were dismissed as cured on the 10th day which shows that the febrile reaction did not prolong convalescence. In every way, as regards diet and general care, we have treated our section cases as ordinary deliveries. The anesthesia employed in our series of cesarean sections is as follows: spinal 1, ethylene 2, ether 33.

All types of this operation have been performed. The frequency of our choice of the low operation with transverse incision in the low uterine segment, as first described by Phaneuf, shows our preference for this procedure. Instead of a straight transverse incision we use a curved incision with the convexity downward. This incision is ample for delivery, is easily closed and can readily be covered by 2 layers of peritoneum. Our most satisfactory results have been with this operation.

TABLE 11.
Fetal Mortality

Premature	Non-viable 19
Still-born or died within a few hours	Viable 19
Neonatal deaths	Viable 25

Total of 44 viable births in 1312 deliveries.
Total of fetal mortality 3. 35%.

Close co-operation between the obstetric and pediatric department under Dr. S. W. Alder has made this low fetal mortality possible.

Pseudo-post-maturity: We have had 3 instances of apparently prolonged pregnancy which terminated in spontaneous delivery of normal sized infants. The term I have coined describes the condition. Summary of these cases follows:

1.—Last menstruation, May 1, 1935.
Expected date of confinement, Feb. 8, 1936.
Actual date of confinement, April 13, 1936.
Weight of baby, 7 pounds 9 ounces.
Apparent duration of pregnancy, 348 days.
Menstrual periods totally irregular.

2.—Last menstruation, October 10, 1934.
Expected date of confinement, July 17, 1935.
Actual date of confinement, Sept. 9, 1935.
Weight of baby, 6 pounds 7½ ounces.
Apparent duration of pregnancy 334 days.
Menstruation usually 60-90 days intervals.

3.—Last menstruation, April 10, 1936.
Expected date of confinement, Jan. 17, 1937.
Actual date of confinement, March 3, 1937.
Weight of baby, 7 pounds, 9 ounces.
Apparent duration of pregnancy 327 days.
Menstrual periods usually at 2-3 months intervals.

These cases presented a problem for the obstetrician. In all cases when the expected date of confinement was past the expectant parents began to call for interference in the course of nature. In all cases measurements of the size of the fetus did not indicate need for induction of labor and in all 3 we were able to persuade the parents to wait for spontaneous labor, which in each case occurred at the time the fetus seemed of average size.

Maternal Mortality: 1. Spanish-Indian woman, age 21 years, at term in her first pregnancy, was admitted to St. Joseph's Hospital comatose after having had an unknown number of convulsions at home. She had no prenatal care. She was in the hospital 24 hours before being referred to me; the only treatment had been administration of 2 ounces of Epsom salts by mouth on 2 occasions. When seen by me she was edematous, semi-comatose, blood pressure was 190/140 and the urine contained large quantities of albumin. She was given glucose solution intravenously and intravenous injection of 2.5 grams of magnesium sulphate. Sodium-pento-barbital gr. iii were given. Twenty-four hours later her condition was much improved and labor was induced by rupture of the membranes. Sodium-pento-barbital gr. vi were administered during labor and delivery was effected, when the head descended below the spines, by forceps. The placenta was expelled normally. There was only moderate bleeding. She seemed on the road to recovery. Then pulmonary trouble developed with high

temperature; she raised frothy blood stained sputum and her lungs were full of rales with definite consolidation of both bases. She died on the 12th day post-partum. Cause of death: bronchopneumonia, pulmonary edema and eclampsia.

2. Caucasian female, age 30, had 3rd pregnancy. Both previous pregnancies had terminated spontaneously in 7th month in still-births. Wassermann and Kahn tests were both negative. Her pregnancy had been stormy with much vomiting and abdominal pain. She was definitely under par physically. At the beginning of the 7th month she developed pyelitis and was admitted to the Presbyterian Hospital for treatment. She was having severe pain in the right kidney. The right ureter was catheterized and the catheter was left in situ. In the afternoon of the day of catheterization, labor began and progressed rapidly. A still-born child was delivered. She bled profusely but not alarmingly. Because of her generally run-down condition, more than on account of the amount of blood lost, we decided to give her a blood transfusion the day after delivery. The patient was a Moss type 2 and a donor of the same group was selected. The bloods were compatible by direct matching. Five hundred c.c. of whole blood were given by multiple syringe method. The patient was returned to bed. About half an hour after transfusion she was deeply cyanotic, extremely dyspneic and complaining of severe pains in the chest and abdomen. She vomited blood and had complete anuria for 24 hours. On catheterizing the bladder only 15 c.c. of nearly pure blood were obtained. Her extremities were cold and livid. No surface veins could be located for intravenous medication or fluids. Saline administered by hypodermoclysis was slowly absorbed and the skin around the needle puncture became necrotic. She died 2 days after the transfusion of blood. The clinical picture seemed to be that of almost complete blockage of the arteriole circulation. Cause of death unknown complication resulting from blood transfusion. I believe this patient would have recovered had this complication not occurred and this death should not be classified as a death from puerperal causes.

Summary: Statistics are presented of 1312 women delivered with 2 maternal deaths.

Statistics are presented on 1302 new borns with 3.35% mortality.

A resume is given of the complications in pregnancy, labor and perperium encountered in these cases.

LONGEVITY

DR. W. M. BRANCH
El Paso, Texas

(Read before the El Paso County Medical Society May 24, 1937.)

In the 17th and 18th centuries, in Europe, human life was lengthening at the rate of about 4 years per century; during the first three-quarters of the 19th century the rate was 9 years; and in the last quarter of the century the rate was 14 in Massachusetts, 17 in Europe and 27 in Prussia in particular; during the first quarter of the 20th century, in the United States, England and Germany, life lengthened at the amazing rate of 40 years per century[1].

Expectancy of life for the baby girl in 1930:

	Males	Females
Denmark	60.9	62.6
Sweden	61.10	63.33
Holland	61.09	63.5
Norway	60.98	63.84
New Zealand	65.04	67.88

Expectancy of life in 1930:

Iowa	65.90
Kansas	66.06
Minnesota	65.22
Nebraska	65.82
North Dakota	65.95
Oklahoma	65.42
Oregon	65.45
South Dakota (male 64.38)	66.81
Washington	65.41
United States (males 59.31)	62.83
Negroes (all told)	49.53

There is no danger of cholera, bubonic plague, yellow fever, typhus fever, or small pox today, and only through the mistakes of officials do we have occasional cases of diphtheria and typhoid.

States where the baby girl's expectancy of life in 1930 was 63 years or more—the figures will be about 70 in 1940:

Arkansas	63.58
California	63.68
Connecticut	63.35
Florida	63.77
Idaho	64.78
Mississippi	63.28
Missouri	63.38
Montana	64.36
Nevada	63.13

Ohio	63.04
Utah	63.57
Wisconsin	64.60
Wyoming	63.57

States where birth rate is exceeded by deaths:

Oregon	6.90
California	6.08
New York	6.06
Washington	4.44
Illinois	4.43
New Jersey	3.86
Massachusetts	2.99
Florida	2.94
Missouri	2.46
Rhode Island	2.45
Connecticut	1.88
Maryland	1.40

States that have a birth rate above the death rate, but below the average—2.82 babies for each 1,000 women:

		Death rate, 10 yrs. of age	
Ohio	.02	Ohio	1.04
Minnesota	1.1	Minnesota	1.09
New Hampsire	1.44	New Hampshire	1.26
Indiana	1.52	Indiana	1.16
Iowa	2.06	Iowa	1.07
Delaware	2.10	Deleware	.94
Pennsylvania	2.23	Pennsylvania	1.08
Kansas	2.75	Kansas	.91

The pure Anglo-Saxon birth rate is greatly reduced, because of exorbitant taxation.

States where birth rate is above 11%:

North Carolina	11.29
Kentucky	11.49
Alabama	11.52
Mississippi	11.58
West Virginia	11.68
Arkansas	12.52
Arizona	12.69
Utah	13.26
North Dakota	13.29
New Mexico	18.28
Texas	19.3

The expectancy of life at birth for boys and girls:

	Boys	Girls
1901	48.23	51.08
1910	50.23	53.62
1920	54.05	56.41
1930	58.84	62.37
1940	63.63	68.33

From 1901 to 1910 the baby boy gained 2 years in life expectancy, and from 1910 to 1920, 3.82 years, and from 1920 to 1930, 4.79 years; the baby girl from 1901 to 1910 gained 2:54 years, 1910 to 1920, 3.79 years and from 1920 to 1930, 5.96 years.

Such gains will continue for at least 20 years; it is probable that the gain will continue after that. In 1960 the little boy will have about 75 years coming to him, and the little girl about 80 years—even though the researchers of the world were to go on a sit-down strike. The 1940 census will have startling information.

Death rate from all causes and ages.

North Dakota	7.6
South Dakota	7.9
Kansas	8.1
Iowa	8.2
Nebraska	8.3
Okahoma	8.3
Minnesota	8.7
Idaho	8.7
Oregon	8.8
Washington	8.8
Texas	9.9
New Mexico	15.6

When a Koch stains tubercle bacilli[3], a Banting discovers insulin for the relief of diabetes, a Von Behring an antitoxin for the cure of diphtheria, or a Park demonstrates the value of toxin-antitoxin for the prevention of diphtheria, the world draws a long breath as if saying to itself, now we are rid of that terror which has haunted the human race for centuries! It then straightway forgets and goes on its way comfortably assuming that the great discovery or invention is being carried into effect, until confronted with preventable disease, in a malignant form. Many die in their 30s, 40s[4] and 50s, cut off in the years of greatest usefulness, and of the greatest obligation to their families and communities; it is in these years that the physician can accomplish the greatest good in prolonging life.

It is a reproach to the profession that between ages 30 and 70 no worthwhile advances are recorded—all the more because so many preventable causes of death are active during this time.

The selective military draft in the world war showed a high percentage of defects in our men, and most of these were and are preventable; the good clean men were taken; the defectives were left to get married and have children, and the taxpayers are paying the bills—more fruits of war. Mixed marriages between the cultivated and those mentally impaired has reduced much of the pure blood of the southern aristocracy.

We should legislate to provide for sterilization of all mentally defective and habitual criminals. The propagation of defectives is rapidly undermining the moral, intellectual, physical, and financial foundations of our government[5]. With crime, there is social degeneracy, due to heredity and environment. mental and physical diseases are a consequence. How about the billions of dollars spent annually on the ever-increasing contribution and maintenance of jails, asylums, hospitals, and reform-

atories, (largely for the offspring of these unfortunates) which should be diverted to the prevention of disease, and the correction of physical defects among children? There are more than 400,000 children in this country with mentalities below the public school requirement. There are 500,000 feeble minded in the asylums.

In 1912 I sent letters to members of the Texas legislature in the interest of a sterilization law. Had my recommendations been enacted into law, the operation and maintenance of the asylums of the state would be 40% less today than what they are, and instead of building a new asylum, quarters would be available in the old ones.

One of the greatest things in preventive medicine is proper nutrition. It raises vitality, prevents deficiency diseases, produces a high state of physical development, insures a stable nervous system, recuperative power, endurance, and resistance to infection. This ideal, especially during pre-school years, has added more than 7 years to the expectancy of life. It is now known that the most important factor from the standpoint of health of the individual during his whole life[1] is his environment up to 15 years of age. Here is where the physical or mental trial balance is taken, and profit or loss is declared.

With due allowance for that as yet unknown factor inheritance and with due weight to environment, the fact remains that children of the cultivated classes have 24 chances to complete courses of study in higher institutions of learning, and to make contributions to the benefit of mankind, as a rule through long and useful lives, while the children of pick-and-shovel laborers have only 5 chances, to take such courses and render such services.

The person endowed with an unusually virile thyroid is perennially alert, youthful in appearance and activity. From this species of humanity emerge those who seem to possess the secret of perpetual youth. At 70 their minds are keen and active, with an exuberance of virulent ideas and a sense of humor. Many artists, musicians, novelists, poets, and philosophers spring from them, and here we find our Spencers, DePews, Edisons, and Rockefellows, many of whom are noted for their longevity. The thyroid is the power house of longevity for millions of persons. In women's colleges, where entrance examinations are required, and special efforts have been made to secure a most hygienic life, the death rate has been reduced to less than one-third of that of the general population of the same age and sex.

The economic loss to Philadelphia caused by the small pox epidemic of 1871-72 has been estimated at $22,000,000. A vaccine bureau with physicians, disinfecting stations, and a campaign of education capable of forestalling the whole epidemic, would have cost $700,000. Can any intelligent taxpayer approve of such waste?

The Jukes family cost the state of New York $1,300,000 in the last 75 years. Indiana has a sterilization law; they do not waste the taxpayer's money like New York and Texas do. It is said that there are 6,500,000 cases of syphilis in this country at present; about 1,000,000 are receiving adequate treatment. How many will have damaged hearts and arteries by 1950 as a result of this infection? A 96% control of syphilis will add 1 year to the expectancy of life. It is certainly a public health question.

Of the death rate here, excepting accidental deaths, 87% were due to acute infectious or contageous diseases; 60% should have been prevented.

Expectancy of life for physicians and the general public:

Physicians		General Public	
1905	60.3	1922	58
1910	60.4	1930	61
1915	60.4	1940	65
1920	61.	1950	69
1926	62.8	1960	72
1927	63.1	1970	75
1929	64.9	1980	78
1939	68.8	1990	80
		2000	82

The general population is a little slow to keep step with physicians; there are several reasons — phones, automobiles, highways, physical examination for every medical student, the liberal use of vaccines, more patients cared for in hospitals, a greatly reduced birth rate, fewer night calls than formerly, and a longer life.

The question of tuberculosis, Bright's disease and diabetes should be settled at the marriage altar.

The federal government has placed a value of $4,000.00 on every able-bodied young man of 20 years. Can any locality afford to let him contract tuberculosis or typhoid fever? These

figures are for the laboring class. Your boy and mine are worth almost 5 times $4,000.00. The fight against disease will aid in the fight against pauperism and crime, it is also true that any measure which tends to eliminate poverty, vice, and crime, will tend to improve sanitary conditions.

The accident death rate was 38,500 in 1936. With holes in the streets and roads, streets, roads and bridges far too narrow, right angle turns, automobiles with unsatisfactory brakes and lights, filling stations selling gas for the gas-tank and a bottle for the tank under a shirt; and many drinking before they drive, the dead as a result, are counted by the thousands.

To Miss Rose Trumbell, we are indebted for the following lines:

You talk of your breed of cattle
And plant for a higher strain,
You double the food of the pasture,
You heap up the measure of grain,
You draw on the wits of the nation,
To better the barn and pen,
But what are you doing my brother,
To better the breed of men?

You talk of your roan colored filly,
Your heifer so shapely and slick,
No place shall be filled in your santion,
By stock that is unworthy and weak,
But what of the stock of your household,
Have they wandered beyond your ken.
Or what is revealed in the round up,
That brands the daughters of men?

And what of your boy? Have you measured
His need for a growing year,
Does your mark of his sire on his features,
Mean less than your brand on a steer?
Thoroughbred—that is your watchword,
For stable and pasture and pen,
But what is the word for the homestead?
Answer—you breeders of men!

Conclusions: If the present human waste were counted in dollars, it would reach billions; if counted in years, it would amount to 10 years or more increase in the expectancy of life for every individual in this broad land of ours.

Sterilization for all mentally impaired, habitual criminals, and chronic alcoholics must come sooner or later.

Every obstetrical case should be attended by a registered physician.

Lectures should be given in the public schools on alcohol, as was done 50 and more years ago.

The pre-school child should be immunized against diphtheria, scarlet fever, whooping cough, typhoid fever, and tested for tuberculosis.

Any medicinal preparation that wlil prevent pneumonia, in the small child with whooping-cough, measles, bronchitis, or the common cold, certainly deserves further study. The pure anglosaxon babies will soon be no more. The sine qua non of man is to live to be old, hale and hearty.

(1) Fisher: Lengthening of Human Life in Retrospect and Prospect, Am. Jour. Pub. Health, Jan. 1937.
(2) Dublin: Length of Life, p. 346 to 376.
(3) Pope: The Prolongation of Life, West Virginia, Jour. Med. March 1926.
(4) Murdock: The Influence of Medicine of Life Expectancy, Jour. Indiana Med. Assoc. 68, Feb. 1935.
(5) Moore: The Foundation of Longevity, South. Med. Jour. Dec. 1934.
(6) Mayo: How to Live Longer. Hygea, 907, Oct. 1931.
(7) Report on National Vitality, p. 112.
(8) Howe: The Prolongation of Life, West Virginia Med. Jour. March 1926.

Meeting of Northern Arizona Sub-Committee on Fractures of the American College of Surgeons

Held in Prescott Saturday, July 17, 1937

Reported by Chairman C. E. Yount,
Prescott, Arizona

The committee and guests were greeted and called to order on the lawn of Mercy Hospital at 2:15 p.m. by the chairman. The program follows:

The "Ambulance Transportation of Fracture Cases" was demonstrated by Dr. C. E. Yount, Jr. Ambulances were furnished by Lester Ruffner, C. E. Hunter and U. S. Veterans facility, Whipple. A new folding automobile litter, devised by Doctors Yount, was exhibited and its practicability shown. The following quotation from Magnuson seems appropriate in this connection:

"The immediate handling and transportation of fractures of the spine should be seriously considered. In any case which can be suspected of injury to the vertebrae, with torsion or compression or fracture dislocation, the patient should be carefully put in the prone position, and when lifted onto a stretcher should be lifted in this position. Further injury is much less likely to occur if the patient's spine is extended or hyper-extended than if he were lifted in a position which might induce further flexion of the body. The layman has a favorite method of lifting an injured person by lifting

under the arms and under the knees. This, of course, reproduces the mechanism which may have caused the injury, and is much more apt to cause further injury than the opposite motion of the body, namely, extension or hyperextension. In addition, the patient is much more comfortable being transported on his belly than on his back, because there is a constant tendency to take the pressure off the injured vertebrae."

Dr. Joseph P. McNally had arranged a complete as well as instructive exhibit of fracture equipment at Mercy Hospital, which he demonstrated to the meeting.

Dr. Ernest A. Born discussed "The Treatment of Shock in Fractures", covering the definition of shock, causes, treatment and measures for prevention or minimizing shock at the place where the accident occurs, enroute to hospital and on arriving at hospital. He stressed that the treatment of shock is more important than the fracture—the patient's life is more important than his limb—but that in a certain type of case traction promptly applied may relieve shock.

Dr .R. N. Looney discussed "Fracture Treatment in Yavapai County, Arizona, Before the Advent of X-ray". Dr. Looney came to Prescott in 1896 and located at McCabe, where he engaged in railroad and mine hospital contract work and built one of the first private hospitals in Yavapai County, a 14-bed hospital. He recalled the first x-ray in Prescott, about 1900, a large, clumsy static machine, and a few years later the portable "Rose coil", owned by himself and Dr. Yount. In those days they learned to diagnose fractures by inspection and gentle manipulation. It was often necessary to give an anesthetic to make the diagnosis. He stated that malpractice suits were rare before the x-ray and now quite common—the patient or his lawyer demanding an anatomically perfect as well as a satisfactory functional result. An unscrupulous lawyer will have an x-ray taken and often the jury will award damages on the basis of the x-ray showing, disregarding good functional result.

Dr. Harry T. Southworth's paper, "Traction in Fractures" is presented in other columns in full. It is unfortunate that some of the many excellent x-ray films illustrating his paper can not be presented.

Dr. A. C. Carlson's paper, "Compound Fractures Their Treatment", is a classic. It was well illustrated from a wealth of non-industrial case material—industrial x-rays being held by the industrial commission. Without these flims we are often unable to present cases requiring such illustration.

Dr. Jacob Shearer, chief of the surgical service at Whipple, presented many interesting case studies, illustrating methods of treatment and results at the Veterans facility. Fracture work has increased here in the past 6 years, due largely to the automobile and C. C. C.

Earl A. Swenson, D. D. S., gave an informative paper on "Fractures of the Jaw", illustrated by x-rays, lantern slides and drawings. In connection with Dr. Swenson's paper we quote from Magnuson: "Fractures of the jaw are so much a problem for the oral surgeon. Reduction and fixation depend almost entirely on his ability to use special equipment, applicable to a highly specialized field. In my opinion they should not be treated by any one who has not this special knowledge and special equipment".

(At Dinner at Hassayampa Hotel.)

Dr. C. G. Salsbury, medical director Sage Memorial Hospital, read his paper on the "Treatment of Fractures at Sage Memorial Hospital". This paper is presented in full in other columns.

Dr. C. E. Yount, Jr., presented a paper on "Some Practical Points in X-ray Technique and Interpretations in Fracture Work". The subjects developed in this discussion were well illustrated by x-ray films and pictures from ballopticon. Men doing fracture work should improve every opportunity to read and interpret x-rays films. They should also be aware of the limitations and fallibility of the x-ray in fracture work.

Dr. E. Payne Palmer, chairman of the Arizona State Fracture Committee of the American College of Surgeons, read an excellent paper on the "Emergency Treatment of Fractures", illustrated with a moving picture reel made at the Massachusetts General Hospital, Boston. Mrs. Palmer ran the projector and her skill was responsible for an excellent showing of the film. The movie film as a didactic method of instruction has long since passed the experimental stage.

Dr. C. E. Yount closed the session with a paper on "Function of the Sub-Committee on Fractures."

"I think that I have read most, if not all, of the bulletins of the American College of Surgeons but have yet to find there one article giving all the information I need as a subcommittee chairman. Far be it from me to attempt the thesis. In my remarks before this committee in 1931 I attempted to orient myself and you from data then available. I quote in part as follows:

"It is expedient that we should become acquainted with our duties and oriented in relation to the Regional Committee of Arizona, Dr. E. Payne Palmer, chairman, and the Committee on the Treatment of Fractures of the American College of Surgeons, Dr. Charles L. Scudder, chairman.

"What is our position and function in this great wheel created by the American College of Surgeons? The parts of the old wagon wheel, as I recall them from my boyhood days on the farm, were the hub, spokes, fellies and iron tire. In hot weather the spokes became loosened from the hub, the fellies loose from each other and the spokes. The wheel rattled like a modern radio in a thunderstorm, often throwing off the tire, with dire disaster to the fellies, spokes, and hub, yes, and to those riding in the wagon.

"Again I ask, what is our position in the great wheel created by the American College of Surgeons? Certainly we are not the hub! That is the college itself. Visualizing our sub-committee as being farthest from the hub, we must be the tire that binds. If the wheel would function properly at all times, it must have its parts in perfect contact and its tire frequently reset to keep the wheel from rattling. This meeting today is for the purpose of setting the tire to the wheel as it applies to Northern Arizona. Before undertaking the smith's job, let us pause for a moment and see how the wheel has been builded and made ready for the iron tire."

Then followed a brief history of the College. Quoting Dr. Scudder:

"Informing the profession of the work of the College through its fracture committee to improve treatment; by assembling interested individuals who may develop a mutual understanding of needs; by establishing groups to concern themselves with progress and the output of the Committee contacts; by stimulating interest in fractures directly by personal appeal; by sympathetic personal approval or criticism of work in progress; by assistance in establishing fracture services in the larger hospitals according to local conditions.

"Such contacts as are made by attendance on these clinical meetings, if repeated with regularity, will serve in a large measure gradually to improve fracture treatment." (A.C.S. Bull. Sept., 1929.)

"Finally, following our simile to our sub-committee, we reach the tire. You have already visualized it as a very small segment of the iron tire that binds. Without the other parts of the wheel we are but a hoop with which children play, or scrap iron. When set to the fellies, what strength! What perfect functioning of a mighty wheel!

"Small and seemingly insignificant is our section of the rim, very remote from the hub, now deep in the mire, now ploughing through the desert dust, now shedding out iron molecules in scintillating energy as we strike the rocks of the roadway, yet, withal, happy that we may have even a small part in this mighty wheel of surgical progress.

"If I have drawn my simile with due regard to historic facts and proper evaluations of existing data, it would seem that our duties as subcommitteemen on the 'tire,' and so very remote from the 'hub,' may be very briefly outlined as follows:

"(1) To serve as surgical outposts in fracture treatment;

"(2) To evince at all times a progressive attitude in fracture treatment;

"(3) To maintain at all times within our sphere of activity an adequate and serviceable minimum equipment for the emergency and definitive treatment of fractures;

"(4) To consider fractures as emergencies and the initial treatment as the most important, admitting always that 'difficult' fractures requrie the care of experienced surgeons;

"(5) To discard obsolete technic and employ the generally accepted methods, such as are outlined in the Bulletin of the American College of Surgeons, 'The Principles and Outline of Fracture Treatment,' and to encourage our conferes to do likewise;

"(6) To recognize the importance of x-ray diagnoses of fractures but not their infallibility;

"(7) To use the standard fracture record sheet authorized by the College and to secure a better follow-up;

"(8) Realizing that a large proportion of the medical profession is ignorant of the poor results of present fracture treatment and uninterested in making them better, it is our duty to stimulate the interest that is lacking and improve the hospital and private standards of treatment.

"I now quote from the minutes of the General Fracture Committee of the American College of Surgeons held in New York, January 23 and 24, 1931: 'At present the General Fracture Committee of the College has numerous sub-committees in the various states and provinces, whose function is to furnish the central committee with information concerning the status of the treatment of fractures in their respective communities, to stimulate interest in the subject, and to put into effect the general and specific recommendations of the General Committee as regards the standards for fracture equipment in hospitals, supervision of treatment, and other standards set up by the General Fracture Committee."

I have been privileged to attend only a few meetings sponsored by the College of Surgeons since 1931; hence I have few data to add in the way of recent progress or agenda for fracture sub-committees. But since 1931, highway fractures and fatalities have increased at an alarming rate. The Northern Arizona subcommittee's territory covers more than 58,000 square miles. Within this vast area spanned by transcontinental highways—north and south, east and west—there will be many highway, industrial and domestic accidents.

The American Red Cross estimates that one million a year are hurt in automobile accidents—not all fractures, of course. The estimated population of the sub-committee's area is 87,000. Assuming the population of the

United States to be 120,000,000. our pro rata of accidents in this area would be 725. You will be called upon to treat many of these accident cases whether or not you desire this type of work; so be prepared.

I am firmly convinced that such a gathering as this does, to again quote Dr. Charles Scudder, "Stimulate interest in the treatment of fractures directly by personal appeal". Furthermore, this meeting has been, and was intended to be, a clearing house discussion on the treatment of fractures. While we have had a short session, I still believe it worth the effort. You have exchanged ideas, methods and experiences. You have had honest, frank discussions of success and failure in fracture work. You have long since come to know that as with medicine generally so with fracture work.

"The knowledge which a man can use is the only real knowledge, the only knowledge which has life and growth in it and converts itself into practical power. The rest hangs like dust about the brain or dries like raindrops off the stones." (Osler-Froude)

I promised not to attempt a thesis in discussing our duties and our futures, but I agree with Carlyle that "Our main business is not to see what lies dimly at a distance, but to do what lies clearly at hand".

In bidding you good-night, I again assure you of my gratitude and appreciation of your presence here today. You have made possible another successful meeting. I hope we shall not have to wait so long for the third, because,

"There's a midnight blackness changing into gray,
Men of thought and men of action clear the way" (Charles Mackay).

The Treatment of Fractures at Sage Memorial Hospital

C. G. SALSBURY, M. D., Medical Director
Ganado, Arizona

(Read before a meeting of Northern Arizona Sub-Committee on Fractures of the American College of Surgeons, Prescott, Arizona, July 17, 1937.)

Ganado, located in the center of a large grazing area, with few industrial activities and comparatively few automobiles, has fractures to account for only 1.3% of admissions to the hospital in nearly 5,000 admissions.

If our work in fractures has not been as extensive as in some of the industrial centers it has been none the less interesting.

As late as 10 years ago, the time at which I took up work at Ganado, the medical work was done in a school infirmary—a small adobe building with a capacity of 12 or 13 beds. An old sterilizer and a few instruments of uncertain age made up the surgical equipment. There was no x-ray within an area of at least 50,000 square miles. There was no fracture equipment of any kind and only a few instruments for bone surgery.

About this time a strong, well-built Navajo girl of 22 had a horse fall on her leg and break both the tibia and fibula. We did our best to reduce the fracture and hold it in position but after 5 to 6 weeks it was evident that the bones were not in apposition and union would not take place.

It was decided to do an open reduction and apply a steel plate to the tibia. Permission was secured for what should have been a simple operation. We were just about ready to aply the plate when a wandering clot from the site of the fracture lodged in a vital center. The patient, whom a new doctor had taken to the operating room well and strong, came out dead.

In an area where surgery was seldom resorted to, it is not difficult to imagine the plight in which I found myself. A meeting of Indians was called by the relatives and discomforting suggestions were made. When things began to reach a really dangerous stage one of the most famous old medicine men got up and suggested that patients placed themselves in the hands of either Navajo or white doctors because they had confidence in them, and naturally both medicine men and doctors realizing this put forth their best efforts to bring about cures, but accidents occurred. He didn't know what had happened to the girl who had just died. He knew it was an accident and that I certainly had not intended it to be so. No matter what they said or did at that time, it would not bring back life to the patient, so the best thing to do was to go home quietly. I have had a warm spot in my heart for medicine men ever since and for one in particular.

For many weeks after this unfortunate hap-

pening we did not have to worry much about surgery.

From this unfortunate beginning our work has gradually overcome one obstacle after another until we now enjoy the confidence of our Navajo friends over a large area and our x-ray, surgical equipment and fracture apparatus is as adequate as one might expect to find in any small hospital.

Recently our orthopedic and fracture work has received valuable help through the interest of Dr. Fred Albee, who comes to Ganado yearly, and from Dr. Joseph Greer who comes twice a year for operative clinics.

In the treatment of fractures we find, as you do, that careful diagnoses by means of careful physical and x-ray and fluoroscopic examinations are our most valuable guide to future treatment. This, of course, is especially true in confusing cases. Having made an accurate diagnosis, reduction with as little injury to surrounding structures as possible and maintenance of the bones in their proper relation to each other until healing occurs, is the end we desire.

The following are fractures most frequently met in our work, and the methods we have used in treating them:

Clavicle. The 2 methods we have found most useful for these cases have been with the Hawley or wooden cross splint and the modified Sayre with a Velpeau bandage.

In **fracture of the shaft of the humerus** we prefer either a Jones traction splint or one of the type developed by Osgood and Penhallow. Care always of course has to be taken to protect the musculospiral nerve.

Fractures of the lower end of the humerus are usually treated with an internal right angle splint or by placing a small gauze roll in the bend; then a figure-of-8 bandage of stockinette beginning at the elbow and running from the humerus to the forearm in acute flexion.

Ulna. In the 2 cases of fracture of the olecranon which we have had, we have been able to secure satisfactory results with the use of a simple straight splint holding the arm in extension.

Radius. We have recently had a neglected fracture of the head of the radius which we found difficult to handle even with open reduction.

We treat **Colles fractures** with the usual methods of reduction and an anterior posetrior splint—padding up under the break on the palmar side to keep the bone in proper alignment.

Fractures of the shaft of the radius or ulna or both, have been fairly frequent. In the lower third of the arm practically the same splinting or cast is used as for **Colles,** while for the middle and upper two-thirds either anterior and posterior splints or circular plaster of Paris splint, or in some cases suspension with traction, are used.

Fractures of carpal and metacarpal bones are treated by immobilization usually with wooden splints.

Fracture of femur: In some cases we have used a Thomas traction splint with a Balkan frame. We have not made much use as yet of skeletal traction. Except in very old patients with impacted fractures near the head of the femur in which there is fairly good position, our procedure of choice in fractures of the shaft of the femur is open reduction and the use of a steel plate, fastened with steel screws. This plate is sometimes reinforced with one or more Parham metal bands. A single or double spica cast is then applied. These are left in place until union is well established. The cast is then removed. The reason we prefer this method is that reduction is difficult to obtain and maintain, due to muscular traction and also to the possibility of muscles, nerves and vessels becoming wedged between the broken ends of the bone. The objection to this method is of course infection, but we have had only one serious case of infection and in this there was a complete recovery. In a number of compound fractures we had every reason to expect serious trouble. We believe that in some of these the open operation gave an opportunity to cleanse the wound more thoroughly than would have been the case if we had used only traction and only cleansed the wound superficially.

We have never used the ambulatory method for fractures of the **femur.**

We have had no fracture of the **patella. Fractures of the tibia and fibula** have formed a considerable portion of our fractures. These have usually been due to falls while riding. Where the fracture is compound or because of difficulty in holding position after reduction

due to an oblique break in both bones we usually do an open reduction and apply a steel plate to the tibia. Where the break is transverse and reduction can be accomplished and maintained with any degree of certainty, we use either a wire or plaster posterior splint with wood sides; in some cases a sectional plaster splint is used with traction.

In **Potts fracture** we have used Dupuy's long wood splint extending from mid-thigh to 8 to 10 inches below the foot. This is then heavily padded so that the inner aspect of the ankle is about 2½ inches from the splint and as the bandage is applied over the foot and extension it is easy to secure the desired amount of adduction.

In fractures of **small bones of the foot** we always use plaster to maintain reduction.

TRACTION IN FRACTURES

HARRY T. SOUTHWORTH, M. D.
Phelps Dodge Hospital, Jerome, Arizona

(Read before a meeting of the Northern Arizona Sub-Committee of the American College of Surgeons on Fractures, Prescott, Arizona, July 17, 1937).

The problem of traction is by no means new. It is practiced in industry and in sports where, following an injury to a finger or arm, a fellow worker or athlete pulls on the injured part and relieves suffering. Traction corrects deformities, often without our studying the forces involved. However, with the many methods now available for traction we are often confused and our knowledge of mechanics and physics is taxed to the limit.

It is impossible to formulate rules as to the apparatus to be used in specific instances. Each fracture is an individual problem. We must choose the appliance most suitable in each instance, and learn to use it well.

In general, skin traction is most valuable in fractures of young children. Excellent results are obtained in fractured femurs. In the adult, however, where considerable weight is necessary to obtain the desired pull, skin traction not only has to be frequently re-applied but often causes excoriation of the skin, thus preventing its further use or interfering with operation.

The advantages of skeletal traction are numerous. With it the desired pull is obtained with less weight because traction is direct and none is lost in unnecessary pull on soft parts, traction is continuous and seldom has to be released; it is painless after application; shortening can be corrected and angulation is easily controlled through the lower fragment; and by its use we always hope to prevent open reduction.

Skeletal traction is especially valuable in, open fractures of the femur or lower leg, open infected fractures, fractures with lesions of the overlying skin, with large hematoma or in those failing to respond to manipulation and multiple fractures; it is our best substitute for operative procedures.

The same general rules apply to skeletal traction as elsewhere in fracture work. Our first consideration is the treatment of shock, of which every fracture has a certain amount. It is important to effect an immediate reduction if not contraindicated. If skeletal traction is to be used, it should be applied from the start.

We have several means of applying skeletal traction: calipers, pins and wires. Calipers pierce the bone only part way. They move with the patient and may slip out; they invite infection. The ice tongs, a variety of caliper, is constructed so its axis of skeletal grip is at a 45° angle with the long axis of the bone. In this way its points are made to dig into the bone as the pull is increased. These also move and increase the chances of infection. There are structural or mechanical defects of calipers. They may be too short or too long or their diameter may be too small for the involved limb. Therefore, it is necessary to keep on hand a number of them—often impractical.

The Steinman pin is usually easily available and is inexpensive. If necessary, a piece of drill rod, 7 to 10 inches long and sharpened to a point on one end, may be used. The pin remains firmly in position and does not slip or pull out. Through its use a uniform pull at right angles to the long axis of the bone is obtained. It is valuable for imbedding in plaster casts.

The Kirchner wire has many of the advantages of the pin. In addition its small calibre is thought to lessen infection and bone destruction.

The insertion of either the pin or wire is

simple. This is usually with local or nitrous oxide-oxygen anesthesia. The point of insertion is perhaps the supracondyles of the femur, the anterior portion of the tibia just below the insertion of the patellar ligament, the lower third of the tibia, or the os calcis. Rigid asepsis must be followed. I push the pin through the bone with a rotating motion. Some men advise driving the pin, although I feel that there is less danger of shattering the bone with our method. A drill point on the pin or wire seems to aid. Important structures must be avoided, epiphyseal planes must not be used and the bone must not be split by too large a calibre pin. The pin must not be placed so close to the fracture that a compound fracture results. After piercing the bone the pin is arranged with equal lengths on each side. The wound is covered with several layers of sterile gauze and with waxed paper or pieces of rubber glove to protect the wound from the moisture of a plaster cast. Traction with rotation, abduction or adduction may be applied to the distal fragment. The fracture may be reduced and a plaster of paris cast applied immediately, incorporating the pin in the cast material. If further traction is needed the patient is returned to bed and the limb placed in a suitable traction splint. This necessitates counter-traction through elevation of the foot of the bed or counter-pull if an arm is involved. To prevent sagging of the bed about the traction splint, boards are placed crosswise beneath the springs. A block of wood or a box is placed within reach of the well leg for the patient to "stand on" and thus adjust his position or help with counter-traction. In open reduction, the pin or wire proves helpful. If reduction can be made without internal fixation the pin may be left in place and incorporated in the cast. If internal fixation is used there is no further need for the pin and it is removed under aseptic technique.

It is important to provide for support of the foot by a strip of adhesive along the plantar surface and attached to a rope pulley and weight. Thus we avoid foot drop. The patient is able to use the back rest and change his position somewhat, especially if there is an overhead frame with hand straps.

Occasionally it becomes necessary, due to extensive lesions, destruction of soft parts, or large hematoma, to place the pin in the bone next below the fracture so that a joint is between the pin and fracture. Such a procedure is permissable for a short time—3 to 4 weeks. By this time sufficient callus should be present to hold the fragments in place with the aid of different traction.

Removal of the pin or wire may be at any time under aseptic technique and without anesthetic. The wounds are dressed and heal rapidly.

Many types of instruments on the market today are used with varying results. One that seemed to have great possibilities is the Roger-Anderson automatic splint. We had disappointments in its use. These were mainly due to a slipping of the fragments after perfect reduction and a cast application. Some men, however, are enthusiastic about this method. With this traction a general anesthetic is given because immediate reduction is done. As in all other types of traction, it is important to have the ends of the fragments in perfect apposition when reduction is completed.

Another useful appliance is the well leg splint, in which the well leg is used as counter-traction against the injured limb. This is especially good in intertrochanteric fractures of elderly persons. With it we can get the patient up, easily changing position, thus reducing the hazards of complications.

Skeletal traction is so advantageous that we seldom consider any other. Excellent results are obtained by many men, however, with skin traction.

We try as far as possible to get reduction with the closed methods but at times this is not possible, as for example, in supracondyiar fractures of the humerus where there is intense swelling from hemorrhage about the elbow. In this there is always an anterior displacement of the proximal and a posterior displacement of the distal fragment. To get reduction it is necessary to have the lower arm flexed at more than a right angle. This only adds extrinsic pressure to the intrinsic pressure and the possibility of a Volkman's contracture is imminent. Such a condition is usually best handled by open reduction. In multiple fractures of the arm or fractures in which there is a long spicule of bone, usually a spiral fracture, or in old fractures with non-union,

open reduction is indicated. This is done with the idea of getting as nearly as possible perfect functional result. It is necessary to have an almost perfect anatomical relation of the bony fragments. This is best accomplished through open reduction.

In conclusion: although many men get good results from skin traction, in our practice skeletal traction has been the more satisfactory. Skeletal traction has proven to be useful both in closed reductions and in open procedures.

Although traction cannot be used in all instances, it certainly has its place in the treatment of fractures and seems to be our best substitute for open reduction.

PENTOTHAL SODIUM: A BASIC INTRAVENOUS ANESTHETIC

E. PAYNE PALMER, M.D., F.A.C.S.
Phoenix, Arizona

(Read before the Maricopa County Medical Society, June 7, 1937.)

Pentothal sodium is an anesthetic agent as safe I believe as other general anesthetics in properly selected cases; certainly it is agreeable to the patient. It approaches being a controllable anesthetic. Its action is rapid and not disturbing to the patient; there is no sense of suffocation and no psychic shock. Our patients have been pleased with it.

All anesthetics must be considered potentially dangerous to life, and should be administered only by those trained and experienced in dealing with them. The administration of an anesthetic is an exacting procedure as it is usually given to its physiologic limit; the patient's condition must be watched closely to avoid a lethal effect. Yet only by approaching this limit can the surgeon proceed with an operation with a degree of safety and comfort for the patient.

Pentothal sodum also should be regarded as potentially dangerous and administered only by experienced anesthetists. It should be used only in hospital practice, never in office or home. A recumbent posture should be maintained during and for some time after its administration. And the patient must be watched closely until recovery is complete.

For short operations no **preliminary medication** need be given; but in major surgery I have found it advisable to give a preliminary hypodermic of morphine sulphate gr. ⅙ to ¼ and scopolamine hydrobromide gr. 1/300 to 1/150. A dose of any drug should correspond to a patient's size and temperament. There should be an interval of about 1 hour between the preliminary medication and the pentothal; then, when the patient arrives in the operating room there will be freedom from anxiety and worry. We think it advisable to have the eyes covered, and the ears packed lightly with oil-soaked cotton, before the patient leaves his room.

One 1-gm. ampule of crystalline pentothal sodium is dissolved in 20 c.c. of sterile distilled water just before being used. **Solutions** are not stable for longer than 2-3 hours; therefore only freshly prepared solutions are used. Any solution that is not absolutely clear must not be administered.

It is **injected** into a vein at a rate not to exceed 1 c.c. in 15 seconds. The majority of patients are asleep in 1 minute with no excitement. Usually 2 to 3 c.c. of the solution obtain surgical anesthesia. The needle is kept in the vein and the solution is given in fractional doses throughout the operation to obtain the desired anesthesia. A free airway must be maintained throughout the anesthesia. The anesthetist must keep a watchful eye on the color of the skin, the rate and rhythm of the respiration, and the state of the jaw. The amount needed can not be calculated on a basis of mgm. per kgm. of body weight.

Complete relaxation can usually be **maintained as long as is desired.** In the average operation from 10 to 15 c.c. of the solution will be administered. Much prolonged operations may require 20 c.c. or more. Even these relatively large amounts are used without harmful effects.

With the careful administration of pentothal, loss of consciousness is peaceful, pleasant, and rapid; respiration is only slightly retarded, although the volume is lessened. There is no marked effect upon the heart; the pulse is at first slightly accelerated, but it soon returns to normal. The eyelids close with the loss of consciousness; the pupils dilate early, but they also quickly become normal; the globes are nor-

mally moist. The color of the skin is normal, and there is normal moisture without excessive perspiration; the blood pressure drops 10 to 20 mm. during the early administration, but it soon returns to its former level. Renal function is not disturbed. Pentothal, like other derivatives of barbituric acid, raises appreciably the concentration of blood sugar. The drug is rapidly destroyed in the body, probably by the liver, and it leaves no ill effects from its administration. The jaw is a good guide to the degree of relaxation of the abdominal muscles: a stiff jaw means a stiff abdominal wall.

Cumulative effects may appear suddenly. Inadequate respiration, cyanosis, dilated pupils, and fixed eyeballs follow too rapid administration. Should any of these appear, the injection must be stopped at once, and 90% oxygen and 10% carbon dioxide given under slight pressure, to relieve the condition and maintain the metabolic rate of the patient until the toxic effect has worn off. Coramine is the most useful antidote and should be given in full doses, i.e. 3 to 5 c.c. intravenously. Metrazol is also a useful antidote. Artificial respiration should be resorted to if necessary.

Preparation for the operation may be begun as soon as unconsciousness is obtained, and the operation may follow immediately. Satisfactory surgical relaxation can usually be obtained. In cases where complete muscle wall relaxation is required, I have infiltrated with a 1% solution of novocaine. In a few cases a small amount of ether may be necessary to obtain satisfactory surgical anesthesia. In abdominal surgery the surgeon must be gentle. Traction on the viscera may cause a slight hiccup, but a few whiffs of ether will quickly eliminate this.

While pentothal was originally intended as an anesthetic for short operations, I have found, in properly selected cases, that anesthesia can be maintained by it with comparative safety for major surgery over long periods. In 1 case with a fractured clavicle with extensive bone-loss and dense scar formation, and 2 previous operations, a massive tibial bone graft was done which consumed 3 hours and 25 minutes and required the administration of 55 c.c. of pentothal solution. At the completion of the operation the patient was in exceptionally good condition; the pulse rate was only slightly above normal; the respiratory rate and rhythm were normal; there was no change in the color of the skin; and there had been no excessive perspiration. She slept for 2 hours after returning to her room and was free from nausea and restlessness.

The return to consciousness, after pentothal anesthesia will depend somewhat upon the amount of the drug given. Consciousness is usually regained in from 15 to 30 minutes. Most patients can be aroused and can talk in that time, but if they are undisturbed, they sleep quietly with loss of memory for several hours. The post-operative shock following pentothal is materially less than that following ether. Nausea, and vomiting are infrequent. There is an absence of restlessness. No mental confusion has been observed in our cases.

Contraindications for the use of pentothal would seem to be general feebleness, low blood pressure, anemia, circulatory disease, hepatic disease, jaundice, organic and obstructive respiratory disease, and toxemias so that the drug would be too slowly destroyed. Children less than 10 years of age probably should not be given pentothal.

I have used pentothal sodium as an anesthetic in a large number of cases, the majority having major surgery—of a wide variety. All of the body cavities have been invaded. Its administration has been satisfactory with no unfavorable symptom or after-effect.

My experience leads me to believe that pentothal sodium is one of the most satisfactory anesthetic agents.

UNDULANT FEVER THERAPY: EXCELLENT RESULTS FROM TYPHOID VACCINE INTRAVENOUSLY

LESLIE R. KOBER, M.D.

(Presented at the Staff Meeting of St. Joseph's Hospital, Phoenix, Arizona, May 10, 1937.)

I have 2 purposes in presenting this report: (1) to present the excellent results obtained in treating undulant fever with intravenous injections of typhoid vaccine, and (2) to bring to the attention of the hospital staff the use which may be made of accurate, and complete hospital records.

Since January, 1933 only 7 cases in the hospital files were recorded with a diagnosis of undulant fever. Two had no record of an agglutination test having been done. One I have omitted from this report; the other I have included since it seemed evident that the test had been done prior to admission to the hospital, was being treated at home with vaccine and had been admitted chiefly for a blood transfusion. The other 6 cases had positive agglutination reactions for undulant fever in varying dilutions. One other case of my own treated at another hospital has been added so that this report consists of 7 cases.

The fact that only 7 cases are to be found in the hospital records over a period of 4 years does not indicate the frequency with which the disease occurs in this vicinity. Undoubtedly many cases occur which are treated at home, for in many cases the symptoms are mild and the course prolonged so that hospitalization is not deemed advisable.

I have tabulated the cases giving for each the date, age, sex, agglutination reaction, white blood count, treatment, and the result of treatment. Since the symptoms presented are usually fever, general muscular aching, and profuse perspiration, I have not felt it necessary to tabulate them. One case was associate with asthma, one with chronic bronchitis, one with syphilis, and one with gonorrhea. It is possible that all the cases showing leucocytosis had complications since normal or subnormal leucocyte counts are the rule in uncomplicated cases of undulant fever. None of the patients died in the hospital.

In the tabulation it will be noted that 2 cases received no specific treatment although case No. 3 was given 5 c.c. of prontosil twice daily for 2 days, apparently because of the septic temperature, in the belief that there must be some complicating infection. One case was treated with 0.45 gm. of neoarsphenamine at 3 weekly intervals. Two were treated with specific vaccine, and 2 with intravenous typhoid vaccine.

The results obtained from treatment were variable. Of the 2 receiving only symptomatic treatment, one had a normal temperature on the second day, the other had septic temperature on the sixth day when dismissed from the hospital. The patient receiving neoarsphenamine had normal temperature on the 16th day following the start of treatment. Of the 2 receiving specific vaccine 1 had normal temperature 5 days after the second injection, the other continued a temperature up to 101 on the day dismissed from the hospital.

Of the 2 receiving typhoid vaccine intravenously 1 had normal or subnormal temperature on the second day following the injection, the other on the third day.

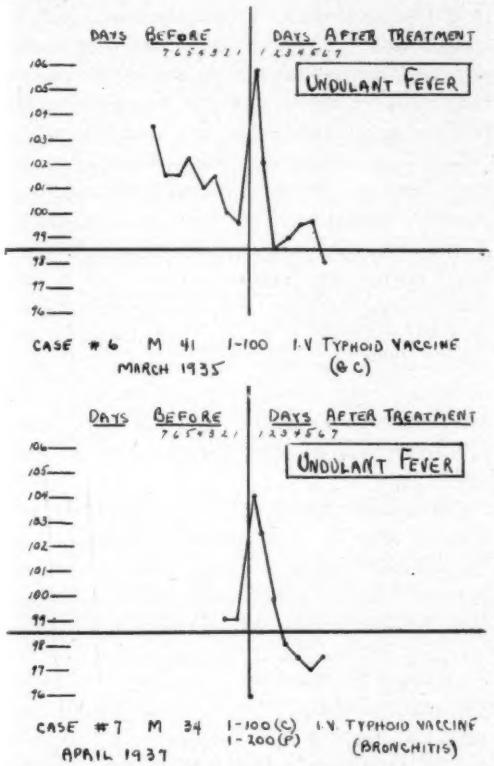
Without follow-up of these patients, after leaving the hospital it is impossib'e to determine the incidence of recurrence of symptoms and hence whether or not a permanent cure was obtained. The 2 cases treated with typhoid vaccine I have followed—1 for 2 years, the other 1 month after dismissal from the hospital and neither had a recurrence of symptoms—no fever. This has likewise been the experience of others using this method of treatment[1,2,3]. In my 2 cases I did not find it necessary to repeat the injection, while others [1,2] have report-

TABULATION OF 7 CASES OF UNDULANT FEVER

Case	Date	Sex	Age	Agglutinaton	W.B.C.	Treatment	Result	Complication
1.	Jan. 1933	M	29	1 to 100	6800	Symptomatic	Good	None
2.	Sept. 1933	M	30	1 to 500	16,050	Neo. O.45gm. 3 at weekly intervals.	Good (16 days)	None
3.	March 1937	M	2	1 to 25 (C) 1 to 50 (P)	16,200	Symptomatic Prontosil 2 c. c. b. i. d. 2 days.	None	Sepsis
4.	May 1936	F	42	not recorded	8800	Melitensis vaccine. Transfusion	None	Syphilis
5.	Apr. 1936	F	32	1 to 25 (C) 1 to 50 (P)	15,300	Specific vaccine.	Good (8 days)	Asthma
6.	March 1936	M	41	1 to 100	5700	Typhoid vaccine.	Good (6 days)	Gonorrhea
7.	Apr. 1937	M	34	1 to 100 (C) 1 to 200 (P)	15,100	Typhoid vaccine.	Good (2 days)	Branchitis

ed the necessity for a second or third injection of the typhoid vaccine in some cases.

Numerous clinicians have reported the observation that in the use of specific melitensis vaccines the best results are obtained where a severe or moderately severe reaction is obtained.



The results obtained with intravenous typhoid vaccine would seem to substantiate the theory that the cure of undulant fever is obtained through the stimulation of a general non-specific immunogenic reaction.*

To summarize: it seems that undulant fever can be promptly cured. In those patients who are strong and healthy with no serious complication, it seems that foreign protein shock therapy with intravenous typhoid vaccine produces the most prompt results. While in patients seriously debilitated or suffering from a serious complication less severe reactions with intramuscular or subcutaneous injections of melitensis vaccine, although slower in obtaining results, seems to be the treatment of choice. The number of cases here reported is insufficient to give conclusive proof but when the results are compared with results reported by other clinicians, these seem to substantiate the efficacy of both vaccine and foreign protein shock therapy in the treatment of undulant fever. Neoarsphenamine does not seem to have a logical place in the treatment of this disease.

*In 1 case treated with typhoid vaccine intravenously the agglutination response dropped 2 weeks later from a complete agglutination in 1 to 100 and partial in 1-200 to complete agglutination in 1 to 25 and partial in 1 to 50. In 1 of the cases treated with melitensis vaccine the agglutination jumped from an initial reading of complete in 1 to 25 and partial in 1 to 50 to a positive agglutination in dilutions up to 1 to 500. Apparently the mechanism is different in the immunogenic response in the 2 methods of treatment.

(1) Bannister, Kimball: Personal communication. During an epidemic of undulant fever in Arizona about 1921 he first used typhoid vaccine intravenously with such uniformly good results that he has since used it routinely in all cases of undulant fever.
(2) Ervin, C. E., Hunt, H. F., Viles, J. S., Jr.: Foreign Protein Therapy; Treatment of Undulant Fever by the Intravenous Injection of Killed Typhoid-Paratyphoid "A" and Paratyphoid "B" Bacilli. Amer. J. Med. Sc. 234, Aug. 1936.
(3) Miller, S.: Protein Shock Therapy in Undulant Fever. Lancet, 1: 1177, 1933.

ARTIFICIAL FEVER THERAPY

A General Review

NORMAN N. EPSTEIN, M. D.
San Francisco

From the Department of Dermatology, Division of Medicine, of the University of California Medical School and the Department of Dermatology of the Mount Zion Hospital, San Francisco, California.

(Presented before the Annual Session of the Arizona State Medical Association, April 1-3, 1937).

Heat, applied in different ways to the human body, has been a therapeutic measure since early times. The present-day concept of artificial fever for the treatment of disease is, however,comparatively new, dating from von Juarregg's[1] report in 1918 upon the use of malaria for the treatment of general paresis. Since that time much work has been done to place fever therapy upon a scientific basis.

In recent years many methods for inducing artificial fever have been introduced. Inoculation with the parasites of relapsing fever and rat-bite fever, injections of a typhoid-paratyphoid vaccine, injections of sulphur in oil, diathermy, radiothermy, and the inductotherm, an electrically heated blanket, heat cabinets, hot baths, and a method which we have described and called the "blanket method", have been used for elevating body temperature.

The essential factors appear to be the height and duration of fever, rather than the modality employed. Comparative therapeutic results have been obtained with many of these methods. The investigative work which has been done in this field of therapy has led to a simplification of the technic and a lessening of the hazards of fever therapy.

In 1934, we[2] noted that if a patient is wrapped in blankets in such a way that no portion of his body is exposed except the face, and if warm fluids are given by mouth, the patient's temperature will rise gradually and within 4 to 5 hours will reach 40° C. (104° F). Making use of this principle, we have developed a simple method for the production of artificial fever which we have called the "blanket method".

Briefly, the **technic** of this method is as follows: the patient is wrapped in thin bath-blankets in such a way that no part of the body is exposed except the face. The heels are protected by gauze dressings and heavy woolen socks. The patient lies upon a canvas sheet, a rubber sheet and 2 or 3 heavy woolen blankets. A common electric body-bake containing 12 40-Watt carbon electric lights is placed over him, and 2 heavy woolen blankets are brought over the bake forming a closed compartment. The front end of the bake is closed with a blanket so that only the head is exposed.

Within 2 hours after turning on the lights, the patient's temperature rises to 40° C. (104° F.) (Fig. 1). The bake is then removed, and the patient is wrapped, but not tightly, with the canvas and rubber sheets and over these the heavy woolen blankets.

The patient's temperature is taken orally at ½-hour intervals until it reaches 38° C. (99.5° F.), then at 15-minute intervals until it reaches 40° C. (104° F.), and after that every 5 minutes by axilla until the treatment is concluded. The thermometer is left in the axilla throughout the rest of the treatment. Warm fluids containing 40 gm. of sugar and 10 gm. of salt to the liter are administered throughout the treatment; about 200 c.c. are given every half-hour. Morphine, gr. ¼, is given hypodermically when the temperature reaches the desired height; this may be repeated in a 1/6 gr. dose in 2 hours if necessary.

The temperature is regulated during the treatment by loosening or removing the blankets if it tends to exceed the desired height. Any degree of fever can readily be reached by this method, and the temperature is easily controlled.

The usual treatment consists of maintaining the temperature at the desired height for 5 hours, and terminating the fever by removal of the blankets. The patient is bathed and given an alcohol rub. If he is not nauseated, a light supper may be given.

During a single treatment, 3,000 to 4,500 c.c. of fluid are given. If the patient does not take fluids well by mouth, 1,000 c.c. of normal saline and 5% glucose may be given intravenously at the conclusion of the treatment.

Mortality: We have employed this method of obtaining artificial fever at the Mount Zion Hospital and the University of California Hospital in over 1,800 instances. Under ideal conditions and with our present knowledge, hazards from this type of therapy have been reduced to a minimum. At the University of California Hospital where 1,500 treatments have been given, one fatality occurred in a badly deteriorated paretic. Our results have been in striking contrast to those from malarial therapy in which the mortality has varied from 3½ to 10 per cent. Fever therapy under any circumstances should be regarded as a serious procedure, and should be given with the greatest of care.

Contraindications: The candidate for fever therapy should be in good physical condition. No serious cardiac or renal lesion should be present. Active tuberculosis or other respiratory infections, obesity, marked debility from wasting disease, and hypertension are contraindications for fever therapy. Advanced age, i.e. over 65 years, should be considered an added hazard. If the patient is not a good risk for fever therapy, and it is urgently needed, the treatment should be modified to meet the conditions.

Untoward Reactions: Following are the untoward reactions which may be encountered:

1. **A rapid rise in temperature to dangerous heights:** This is most apt to occur when high temperatures are obtained, such as 40° to 41° C. (104° to 106° F.). The patient's temperatures may rise suddenly to 41.5° - 42.5° C. (106.7° - 109° F.*, and the patient may go into a state of heat collapse. If the temperature is accurately recorded every 5 minutes and properly regulated, it is not likely that the rapid rise will occur. The pulse is also a good indication of the patient's condition. As a rule, the pulse-rate does not exceed 140-150 per minute at the height of the temperature; a rise above 160 per minute is an indication to discontinue treatment.

Such a rapid rise of temperature is not usually serious if it is detected and combatted promptly. Immediate measures to lower the temperature should be instituted, such as cold sponges, cold colonic flushes, and an intravenous injection of 1,000 c.c. of 5% glucose in normal saline solution. It has been our experience that this reaction occurs most frequently in badly deteriorated paretics or in individuals who have been greatly debilitated by their disease.

2. **A secondary rise** in temperature occurs occasionally several hours after treatment is completed. This should be watched for and combatted.

3. **Nausea and vomiting** are not uncommon symptoms during and immediately following treatment. They are not likely to occur if sufficient fluids are administered during the treatment.

4. **Hematemesis** occurred in 2 of our cases.

5. **Auricular fibrillation** developed in 1 case.

6. **Tetany** is occasionally seen.

7. **Herpes simplex** is of common occurrence, and usually follows the first treatment although sometimes the second and third. It is more likely to appear when high temperatures are induced.

Indications for artificial fever: Krusen[3] recently reviewed the reports on fever therapy which have been published during the past year. He included over 100 such reports which indicated that fever therapy was used for a wide variety of conditions. Artificial fever is not a panacea. According to our present knowledge it is, however, of proved value in the treatment of syphilis, gonorrhea, chorea, interstitial keratitis, certain forms of chronic arthritis, and bronchial asthma.

In treatment of syphilis: My own interest in fever therapy has been centered mainly in its use in the treatment of syphilis. The exact way in which fever produces beneficial results in syphilis is not known, but there is considerable evidence to show that high temperatures have a direct effect upon the treponema pallidum. Warren[4] and his co-workers have shown that the treponema pallidum is destroyed in vitro if a temperature of 39° C. (102.2° F.) is maintained for 5 hours, of 40°c. (104° F.) for 3 hours, of 41° C. (105.8° F.) for 2 hours, and 41.5° C. (106.3° F.) for 1 hour. Bessemans and Thiry[5] recently showed that in humans it required a tissue temperature of 42° C. (107.5°F.) sustained for 1 hour, or of 40° C. (104° F.) sustanied for 2 hours, to render the treponema pallidum avirulent and immotile. They heated syphilitic lesions by means of hot water and diathermy, and determined the tissue temperature by means of a needle thermocouple. Primary and secondary lesions treated in this way involuted promptly, while the unheated lesions progressed in the usual manner. Many others have shown that in rabbits heat alone causes the disappearance of the treponema pallidum from syphilitic lesions, and can cause these lesions to heal promptly. Artificial fever can prevent the successful inoculation of treponema pallidum in experimental animals.

It is evident from the effect of heat upon the treponema pallidum in experimental animals, in the test tube, and in human tissues, that high temperatures which can be easily and safely produced artificially should be beneficial in the treatment of human syphilis. In addition to the direct action of high temperatures upon the invading organisms[1] other factors such as increased tissue resistance undoubtedly play a part in the beneficial effects obtained.

In 1934, **we[2] treated 33 patients in the early phase of syphilis** with fever alone. The effects upon the dark-field examinations, the clinical course of the lesions, and the serologic tests were noted. While in 94% of the cases the dark-field examinations were rendered negative and the lesions involuted promptly, it soon became evident that the fever did not sterilize the patient of treponema pallidum. The blood Wassermann reaction was not reversed to negative in any of the patients; and clinical relapse occurerd in 3 cases shortly after the treatment was discontinued. These findings are similar to those of other workers.

Recently Neymann[6] reported **good results** in early syphilis by combining **drug and fever therapy.**

The use of **artificial fever** in other forms of systemic syphilis, including the **"Wassermann-fast" group,** has not, in our experience, been promising.

The effects of **fever upon general pasesis, tabo-paresis, tabes dorsalis and other forms of neurosyphilis is at times striking.** Artificial

fever therapy is a valuable adjunct in the treatment of all forms of neurosyphilis.

An analysis of the results which we obtained in a series of **55 patients with neurosyphilis** is presented. This study represents our experience up to May, 1936. In this group there were 37 males and 21 females; their ages varied from 18 to 71 years, although most of the patients were between 35 and 45 years of age. The average age was 39.6 years. The cases were classified according to the type of neurosyphilis. All patients were in the late phase of syphilis. There were 12 with general paresis, 8 with tabo-paresis, 14 with tabes dorsalis, 7 with the meningovascular type; 17 were asymptomatic.

All received antisyphilitic drug therapy both before and after fever therapy. The large majority were resistant cases; treatment had been continued for a considerable period without material effect upon the spinal fluid findings before fever therapy was instituted. The average period of observation was 1.6 years before fever therapy, and 1.4 years after. An attempt was made to give each patient 10 weekly fever treatments, each consisting of a temperature of 40° C. (104° F.) or over, maintained for 5 hours.

Serologic results—spinal fluid: Among 55 cases, in 35 or 63% the Wassermann reaction of the spinal fluids changed from positive to completely negative; in 13 or 23.4%, it became less positive; in 3 cases it became more positive; and in 4 cases it did not change. Thus the spinal fluid in 86.4% of the cases either became negative or improved.

The changes in the colloidal gold curve were not as striking, although in 25 cases, or 47.1%, it became normal; in 40% it became less positive; in 2 cases it became more positive; and in 4 cases there was no change. The colloidal gold reaction is slower to change under treatment than the other elements in the spinal fluid. Taking the group as a whole, the gold curve in 81.1% of the cases either became normal, or improved and gave promise of becoming normal with continued treatment. The cell-count responded promptly to treatment; in 32, or 91% of 33 cases in which the cell-counts were abnormal they were reduced to normal. In 2 cases there was a decrease in the number of cells although not to normal; and in only 1 case did the number of cells increase. The proteins in the spinal fluid were reduced to normal in 25 cases, or 59.5%; in 15 cases, 35.7%, they were reduced but not to normal. In 2 cases there was an increase in the proteins.

Serologic results—blood: The blood Wassermann and Kahn reactions did not respond as well as did the spinal fluid elements. In 16 cases, or 28%, the blood Wassermann reactions became negative; in 9, or 15.5%, it became less positive; in 12, or 21%, it remained positive; in 2 it changed from negative to positive; and in 8, or 14%, it was negative before fever therapy was instituted and remained so. In 43% of the cases the test either became negative or less positive. The Kahn reaction of the blood in general paralleled that of the Wassermann, although it reversed somewhat less easily.

Changes in clinical status: For the most part the clinical improvement corresponded to serologic improvement, although the clinical change took place long before the serologic findings changed. The maximum serologic change did not become apparent for a year or longer, whereas the clinical symptoms tended to disappear within the first few months after treatment was instituted.

Of the 20 cases of general paresis and tabo-paresis, only 2 patients had to be institutionalized. Five of the remaining were markedly confused mentally, but following treatment they improved sufficiently so that they were able to return to work. The rest of the cases were milder in type, and the disease in these patients has apparently been arrested. If the cerebral damage has been great, no amount of treatment can restore the patient to a normal condition. In many instances, although the disease is apparently arrested, the patient continues to show progressive mental deterioration. Therefore, therapy should be instituted as early as possible in the course of the disease.

In tabes dorsalis, optic atrophy and ataxia were little relieved. One outstanding effect of fever therapy was the elimination of lightning pains and crises. In practically every patient with severe pain, this symptom was relieved during the treatment. The relief was only temporary in some cases, lasting a few weeks or months; in others it was permanent.

Although **artificial fever therapy** was originally introduced for the treatment of neuro-

syphilis, it **is of greatest usefulness in gonococcal infections.** The gonococcus is susceptible to temperatures that can be safely attained in human beings. Different workers have reported conflicting data on the exact deathtime of the gonococcus. However, Boak, Carpenter and Warren[7] carefully studied the effect of heat on 130 different strains of gonococci in test-tubes. They found that gonococci generally are destroyed at a temperature of 41.1° C. (106° F. to 41.6°) C. (107° F.) in from 6 to 27 hours.

A review of the literature on the effects of artificial fever therapy in gonorrhea and its complications show that this form of treatment yields excellent results. Our own experience in the treatment of gonorrheal arthritis, epididymitis, prostatitis, urethritis and salpingitis, is in accord with that of others.

Acute gonorrheal arthritis responds with surprising promptness. The pain frequently leaves after 1 treatment, and most of the cases clear completely after 4 to 6 treatments. The temperature attained for treatment of this type of infection should be higher than for treatment of neurosyphilis—usually 41° C (106° F.) for 5 to 7 hours. The treatments are given at shorter intervals, i.e. every 4 to 5 days, for best results. Chronic gonorrheal arthritis responds less well; some patients obtain complete relief but the majority are only partially benefited.

Epididymitis, prostatitis and salpingitis respond well to fever therapy; urethritis is somewhat more resistant.

Treatment of other diseases: We have had some experience in the treatment of various other types of arthritis; although some of the patients received temporary benefit the results in general have been disappointing.

A number of patients with multiple sclerosis have been treated. The large majority received no benefit; only 2 or 3 seemed improved.

In mycosis fungoides, psoriasis, Hodgkin's disease, and lymphogranuloma inguinale, fever therapy was found to be of no value.

Comment: Artificial fever can, under certain conditions, be produced in patients with little difficulty and without hazard. This accomplishment is the result of years of work and study. Fever therapy has a definite place in our therapeutic armamentarium.

The exact way in which high temperatures produce their effect is not completely understood. There is probably a direct action upon the invading organisms as well as upon the infected host. In some way, fever hastens nature's attempt at cure.

It is of little importance whether fever is developed within the body, i.e. by inoculation with malaria, by typhoid injections or by diathermy; or whether it is produced by placing the patient in a hot bath or a heat cabinet. The only factor of importance is that the elevation of temperature be of sufficient height and duration. The method of choice is the simplest and least hazardous.

Methods employing physical means are preferable to those using biologic agents because they are more controllable, and because their effect upon the patient is less debilitating. At the present time we can employ fever as we do any other therapeutic agent. We can prescribe the exact height of temperature desired, and the rise in temperature can be stopped at any point that is indicated. The treatment can be altered to meet the various conditions that are encountered in clinical medicine. If a patient is a poor risk, lower temperatures can be induced and the treatment stopped immediately if the patient does not tolerate it. These advantages are of great importance.

Artificial fever can be induced in patients by means of simple and inexpensive equipment. While high temperatures can be induced easily, we must never regard this form of therapy lightly. The patient with a temperature of 40° to 41° (104° to 106° F) is acutely ill and requires the utmost care. The treatment is a hospital procedure, and should be conducted only by trained personnel.

Lastly, I wish to point out that fever therapy is not a panacea for all diseases. It has unquestionable value in the treatment of all types of gonococcal infections and in neurosyphilis; its value in the therapy of other diseases remains to be proved.

Summary: 1. A review of the subject of artificial fever is presented.

2. The blanket method of inducing artificial fever is described.

3. The serologic and clinical results in a series of 58 patients with neurosyphilis treated by means of artificial fever and drug therapy, are given.

4. The value of artificial fever therapy in gonococcal infections is discussed.

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FUNCTIONAL CARDIO-VASCULAR DISORDERS: "CARDIAC NEUROSIS"

WILLIAM C. MENNINGER, M. D.
Topeka, Kansas

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(Continued from August)

Therefore, it seems important that we recognize that we physicians have **wide variations in our conception of psychotherapy,** that it has many different forms which are applied in various ways. Certainly we have no right to ever assume that our patient knows what we mean by "psychotherapy". In fact, we probably have no right to use the term. Unless the physician takes the trouble to explain to the patient the interrelationships of his emotions and his organs and the fact that his symptoms are an expression of his total personality, he is not likely to accept or profit from any kind of psychotherapy.

Consequently, when I state here that "psychotherapy" is the chief therapeutic recommendation it needs amplification. The physician must first supply reassurance. This reassurance is not merely a matter of words, since the patient is often impressed more with the attitude a physician assumes rather than with what he says. Perhaps the most important method of giving reassurance is by making a careful study of the patient. A detailed and thorough examination from the psychologic, physical, and laboratory standpoint impresses the patient with the physician's interest, and indicates to him that the physician has a basis for statements he may make at the conclusion of such an examination.

These patients can profit by a limited amount of education regarding the heart and the cardiovascular physiology. Statements the physician makes to the patient about his heart should be made only after a thorough examination; only then can the patient appreciate that the physician knows what he is talking about. Statements the doctor makes should be positive and definite, and if he is in doubt about certain points it is better not to mention these. It is advisable to tell the patient his significant findings and through an educational procedure, which is essentially psychotherapy, to explain the cause and the relationship of his symptoms.

Another practical point in psychotherapy is a sufficient evaluation of the environmental situation to make recommendations regarding it. Sometimes this means a change in the status of the patient, or a change in his relationship to his family, or possibly even in his business. In making such recommendations, however, the physician needs to do so cautiously and guardedly. For instance, it is much more advisable to help the patient evaluate the environmental situation, pointing out to him conflicts, which he may not see, more or less leading him to the conclusion that such factors in the situation should be changed. The same guarded attitude should be used relative to interpretations. When the physician may recognize the psychologic implications in the patient's illness, the hate or jealousy, he should be guarded in explaining these psychologic mechanisms. In prolonged psychotherapy this is desirable and important, but too frequently, after only short contacts with the physician, the patient does not have an adequate grasp of these factors, at least insofar as they are related to his own unconsciousness; consequently, he either misinterprets or fails to understand such interpretations. However, the physician, on the basis of his understand-

ing of the psychologic mechanisms, can often effect helpful psychotherapy by guiding the patient into changes in his environment, in undertaking new or substitute interests.

The role of drugs and a special regime and rest are all of minor importance. It is universally agreed that drugs are not indicated, and in fact are harmful, except for the possible use of a mild sedative. To prescribe a regime is in some instances harmless, but if it permits the patient to play the role of an invalid or emphasizes his incapacity to be as other humans, it is likely to do more harm than good. Rest is rarely indicated and often is contraindicated, for the same reasons. To place limitations on the patient's activities likewise creates a contradiction in the physician's attitude; for certainly if he tells the patient that his heart is all right, he has no grounds for inferring that this is not true through the limitation of the patient's activities. It is usually advisable to know about the patient's use of alcohol and tobacco, though again, it is usually unnecessary to restrict these. When restricting it can be done on the basis of the pharmacology of the drugs contained in them, rather than any interference that the heart is not all right.

When the individual with a functional heart disorder becomes a "major" psychiatric problem (as judged by the criteria listed above), he needs to be under the care of the psychiatrist. The physician can advantageously keep in mind, however, that if the psychiatrist is to achieve success with the patient he, the referring physician, has certain responsibilities. This responsibility for the most part is concerned with giving the patient sufficient explanation and preparation for his visit, i. e., the part played by emotions in all disease, etc. Too often the patient is referred to the psychiatrist with some naive idea that he is going to a cardiologist, or to some "specialist" who is particularly interested in heart disorders. On discovering that the psychiatrist is particularly interested in emotional difficulties the patient is all too prone to assume immediately that both his referring physician and the psychiatrist think that he is "crazy". Consequently, unless the patient himself has some recognition of the psychologic component in his illness, he is not likely to accept psychiatric help.

The psychiatrist classifies these types of difficulties into various larger groups of the neuroses and psychoneuroses. Sometimes it is necessary to change the environment—namely, to hospitalize the patient. Particularly is this true when the cardiac symptoms are only a part of a much more extensive and complex difficulty. In some instances psychotherapy is given by the psychiatrist in which the patient's problems are evaluated with superficial interpretations in terms of relationships to people (family and friends) and reactions to his business, to his problems, to his interests. We can assume that in some instances the technique of psychoanalysis is indicated as offering the most likely help for the individual. The application of this form of psychotherapy, however, is of necessity limited to a relatively small number of patients—an infinitesimal number in contrast to the great group so afflicted. Psychoanalysis must be a limited procedure because of the amount of time it requires, and the consequent expense.

SUMMARY: It has been my purpose to indicate that the so-called "cardiac neuroses" are 1 example of a much larger group more technically termed the "organ neuroses". These illnesses in all instances represent the conversion of a psychologic stimulus into a physical symptom, attached to a particular organ. The understanding of such illnesses is possible only through an understanding of the psychologic mechanisms. In the functional cardiac disorders it is suggested that their origin is intimately related to a completely repressed and thus totally unconscious hostility. Their treatment belongs entirely in the realm of psychotherapy, and this psychotherapy can and should be given in the great majority of cases by the general practitioner, the internist or the cardiologist. If he recognizes that his function is to treat the personality—perhaps more specifically, the mind of his patient, and not the heart—and he does this with tact, conviction and intelligence, he is likely to be rewarded by results quite as brilliant and as satisfying as are obtained in any field of internal medicine.

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The International Assembly of the Inter-State Postgraduate Medical Association of North America wil be held in St. Louis, October 18-22 under the presidency of Dr. John F. Erdmann of New York. Pre-assembly clinics will be held on Saturday, October 16th and post-assembly clinics, on the 23rd in the hospitals of St. Louis.

Dr. George Crile of Cleveland, is chairman of the program committee and has arranged what appears to be a most thorough postgraduate study course.

The St. Louis Medical Society is to be host to the assembly and is attempting to make all necessary arrangements to have the meeting a success.

In an advertisement in this issue will be found a list of the various subjects to be discussed. We note the following: hypertensive heart disease, deficiency diseases, cord injuries, obesity, peptic ulcer, ulcerative colitis, congestive heart failure, carcinoma of the stomach, chronic prostatitis, migraine, allergy as related to the otolaryngologist, medical treatment of peptic ulcer, brain abscess, etc.; there are many more interesting subjects to be discussed.

Among the list of speakers we mention Fred W. Bailey of St. Louis, Hugh H. Young, Baltimore, George Crile, Cleveland, Evarts Graham ,St. Louis, Herman Kretchmer, Chicago, William H. Vogt, St. Louis, Ralph Kinsella, St. Louis, William D. Haggard, Nashville, Elliott P. Joslin, Boston, Walter E. Dandy of Baltimore, Walter C. Alvarez, Rochester, Minn., J. Harvey Black, Dallas, Horace W. Soper, St. St. Louis, John R. Caulk, St. Louis, Loyal Davis, Chicago, and various other equally well known men.

This would seem to be a meeting that every physician who can afford to be away from his office in October should wish to attend.

BOOK REVIEWS

THE LABORATORY DIAGNOSIS OF SYPHILIS by Harry Eagle, M. D., Passed Asst. Surgeon, U. S. Pub. Health Service, Wash., D. C.; Lecturer in Med. John Hopkins University Med. School, Baltimore, Md.; Formerly Asst. Prof. of Bacteriology, U. of Pa. Med. School; The C. V. Mosby Co.; St. Louis, Mo.; 1937; Price $5.00.

Dr. Eagle has been in charge of a Wassermann laboratory for many years and he writes from a welter of experience. He has attempted to present the various laboratory tests for syphilis not only that the technician may be informed upon them, but that all physicians may have comprehensive interpretation of them especially from the standpoint of possible errors.

The book is divided into six parts. One deals with Wassermann reactions, two flocculation tests, three examinations of spinal fluids, four, other tests than Wassermann and flocculation, five, clinical evaluation of serologic reports, and six, statistical comparison of serologic technics and the method of choice. The six appendices discuss zone reactions, daily routine in a large Wassermann laboratory, Wassermann tests on fluid other than sera, the combined Wassermann-flocculation technic. The references reqiure 42 pages and the index seems unusually complete. This is a Mosby publication and hence no special recommendation is necessary upon the appearance.

CONCEPTS AND PROBLEMS OF PSYCHOTHERAPY by Leland E. Hinse, M. D.; Prof. of Clinical Psychiatry, College of Physicians and Surgeons, Columbia University; Asst. Director, N. Y. State Psychiatric Institute and Hospital; Columbia University Press, N. Y.; 1937; Price $2.75.

Every physician and probably every mother practices more or less psychotherapy, but the application of this method of healing in a systematic, organized manner, is a completely recent development. In this volume the author has attempted to present the modern conception of the subject in a manner to make it practcial to physicians generally. The reading of this book is worth any physician's time. It is a small book of 199 pages.

CLINICAL ALLERY, By Louis Tuft, M.D.; Chief of Clinic of Allergy and Applied Immunology, Temple University Hospital; Associate in Immunology, Temple University School of Medicine; Director of Laboratories, Pa. Dept. of Health, Philadelphia; W. B. Saunders Co., Philadelphia, Pa.; 1937; Price $8.00.

Dr. Tuft has written his book on clinical allergy specifically for the general practitioner. It is believed that allergy permeates all fields of medicine and that physicians generally should be well informed upon the subject. This would seem to be a sane and sensible book for general practitioners to use.

The book is divided into 4 sections. One has to do with "General Principles", 2 with "Etiologic Types", 3 with "Clinical Manifestations", and 4 with "Allergic Dermatoses and Allergy Relation to the Specialties". There are 24 chapters dealing with various subjects such as: diagnosis, treatment, serum allergy, drug allergy, food allergy, pollen allergy, bacterial allergy, asthma, hay fever, migraine, urticaria, etc.

Every practitioner should have a book on allergy and this seems to be one of the better ones.

Dr. J. D. Hamer of Phoenix addressed the Tempe Rotary club on the subject "The Life-saving Project of the American Red Cross."

SOUTHWESTERN MEDICINE

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The **Program** Committee of **Southwestern Medical Association** has obtained the speakers—a list of whom will be found in another column—for the meeting to be held in Phoenix, November 18-20. Every speaker is an authority upon his subject and will undoubtedly present a program well worth attending.

We happen to know especially well the reputations of Dr. Chauncey D. Leake, Dr. Gladys Dick, Dr. Arthur Steindler and Dr. Charles A. Bahn, and have no hesitancy in recommending that all members of our association should not fail to hear the addresses given by these persons. No doubt the others are of equal standing.

A START ON SOCIALIZED MEDICINE

The Federal Social Security Board is making an experiment in state medicine among the employees of the Federal Housing Board and the Home Owners Loan Corporation. The experiment is just being started and as yet we can not know what the program will be or how it will work out. We understand, however, that the employees are to pay something over 3 dollars per month for themselves and families and that a limited service will be afforded them.

It is easy to see that this may be a beginning of an extensive program into which all federal and state employees may be drawn. It also would be but a step to extend it to municipal and state employees. The American public should be thoroughly informed upon this program and upon how similar programs have worked in other nations. They should especially know that in many of the nations in which no state medicine prevails, the death rate per 100,000 is decidedly less than in many of those which have state medicine. Unless organized medicine makes an extreme effort to propagandize the public against socialized medicine, it is almost certain that it shall be forced upon us.

If state medicine does come, what should be the attitude of the medical profession concerning it? When it reaches a community, what shall be the attitude of the doctors in it? Should those of organized medicine stand off and refuse to enter into the program and allow those who do not belong to the medical societies participate in the program and reap such rewards as there are? It seems to us that the members of the organized profession should be in the "band wagon" cooperating to the fullest extent when these conditions are forced upon us.

It would seem possible that bureaucratic medicine might be operated for the benefit of all and that the evil features could be kept from being greater than what they are under the system now prevailing. Certainly, however, this cannot happen if organized medicine refuses to cooperate.

The program of Senator Lewis to take care of all indigents at federal expense would certainly be a blessing—at least financially to the medical profession; as it now is, the indigents are cared for by county physicians who are often tremendously overworked or by private physicians as a charity proposition. That the evils that go with bureaucratic management may be terribly sad, must be seriously considered. At any rate, it seems to us that organized medicine should be considering what its members should do when state medicine is

forced upon a community. The physicians of the District of Columbia are now having to decide this question; in time it may, probably will, reach other communities.

IMPROVING TREATMENT OF FRACTURES

We present in this issue, the chairman's report and two short papers presented at a meeting of the Northern Arizona Sub-committee of the American College of Surgeons on Fractures.

Not being erudite as a surgeon, we do not know that these two papers present advances in the treatment of fractures. We do believe, however, that the work of this committee, Dr. C. E. Yount, its chairman, and the Arizona committee of which this is a sub-committee, deserves special commendation for the work being done. The fact that the meeting was held indicates that surgeons of this district are "on their toes" as to the treatment of fractures and are likely doing modern work along this line. It probably means also that they are educating lay persons in the proper handling of fractures from the time of injury to the time they get into the hands of surgeons.

Dr. E. Payne Palmer, who has been chairman of the state committee, attended the meeting and gave the members in attendance the advantage of his experience and enthusiasm for improving the treatment of fractures.

We would like to see such meetings in all parts of New Mexico, El Paso County and Arizona, and to know that our surgeons are instructing lay persons in the best handling of fractures in the interim between injury and scientific care.

"FEDERAL REGIMENTATION OF PHYSICIANS AND HOSPITALS"

On July 28th, Sen. J. Hamilton Lewis introduced into the senate of the United States, a joint resolution to provide medical care and hospitalization for the needy at the expense of the national government and to make civil officers of the federal government of all medical practitioners. If this bill becomes a law, the states will be entirely relieved of medical care of the indigent sick and injured. Any physician or hospital who refuse to comply with the law would be subject to a fine of $1,000.00 or imprisonment for a month. Likewise an individual who makes exorbitant charges, or charges the patient for something that was paid for by the federal government would be liable for punishment.

The bill did not become a law at this session of congress. Just what will be done with it in the future remains to be seen.

SUBJECTS AND CONFERENCE LEADERS FOR THE NOVEMBER MEETING OF SOUTHWESTERN MEDICAL ASSOCIATION

PHARMACOLOGY AND THERAPEUTICS

DR. CHAUNCEY D. LEAKE, San Francisco, Calif., Professor of Pharmacology and Therapeutics, University of California Medical School.

GENERAL AND THORACIC SURGERY

DR. LEO ELOESSER, San Francisco, California, Professor of Surgery, Stanford University School of Medicine.

ORTHOPEDICS

DR. ARTHUR STEINDLER, Iowa City, Iowa, F.A.C.S., Professor of Orthopedic Surgery, State University of Iowa College of Medicine.

IMMUNOLOGY

DR. GLADYS DICK, Chicago, Illinois.

GENERAL MEDICINE

DR. ELMER L. SEVRINGHAUS, Madison, Wisconsin, F.A.C.P., Associate Professor of Medicine, University of Wisconsin Medical School.

INTERNAL MEDICINE

DR. CHARLES M. WHEELER, San Francisco, California, Research Associate in Tropical Medicine, Pacific Institute of Tropical Medicine, Hooper Foundation, University of California.

OPHTHALMOLOGY

DR. CHARLES A. BAHN, New Orleans, Louisiana, F.A.C.S.

A NATIONAL CANCER INSTITUTE

The United States Congress has passed a bill to establish in the District of Columbia an institution for the study of cancer and has appropriated $150,000.00 for the erection and equipment of the buildings and $700,000.00 are authorized for maintenance and operation. Gifts are to be accepted by the Secretary of the Treasury to further the work. The work of the institution will supplement the work on cancer being done by the United States Public Health Service. This, in conjunction with the $10,000,000 recently given by a private donor to Yale University, speeds the day when we shall know more about cancer.

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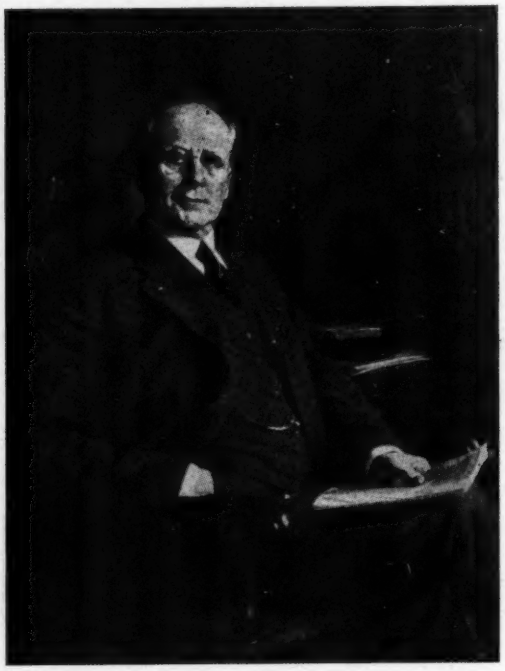
GEORGE TURNER, M. D. DELPHIN von BRIESEN, M. D.

George H. Simmons, M. D., Editor and General Manager Emeritus of the American Medical Association, died in Chicago, September 1, 1937 at the age of 85 years and eight months, having been born January 2, 1852, in Moreton, England. He came to the United States in 1870.

His early years here were devoted toward getting an education. He attended Tabor College of Iowa in 1871 and 1872 and the University of Nebraska from 1872 to 1876. He earned his doctor of medicine degree from Hahnemann Medical College of Chicago in 1882 and from Rush Medical College in 1892.



He practiced medicine in Lincoln, Nebraska, from 1884 to 1899 during the last four years of which time he was secretary of the Nebraska State Medical Association and part of the time also of the Western Surgical and Gynecological Society.

He supported himself and paid his college expenses by literary work, having been acting editor of the Nebraska Farmer, assistant city editor of the Nebraska State Journal and field correspondent of the Omaha Republican and the Kansas City Journal. In 1896 he established the Western Medical Review and for a few years acted as its editor.

In 1899 he was selected, from a considerable number of worthy persons given consideration, to be general secretary of the American Medical Association, which position he held until 1911. He was editor of the journal from 1899 to 1924. He was general manager of the association from 1901 to 1924.

During the 25 years of Dr. Simmons' general managership great things were done by our great national organization for much of which he was largely responsible. The plan of organization of the association was changed; active interest was taken in improving medical education; medical schools were graded; hospitals were bettered; reform in the type and advertising of proprietary remedies was begun and actively pursued; various councils and bureaus of the association were developed the better to safeguard the health of our people; the circulation of the journal grew from 10,000 to many times that number; new special magazines were started and developed; the quarterly cumulative index was initiated; Hygiea was originated; many other successful adventures should be detailed to give a fair conception of the work this man did.

Dr. Simmons was an indefatigable worker; he had vision; he was courageous; he was not seriously affected by the great amount of criticism which naturally was aimed at him by those who were harrowed by his work.

In 1924 he was made Editor and General Manager Emeritus and was relieved of the daily grind he had had for a quarter of a century. He continued however, to visit the association's headquarters from time to time and ever was willing and anxious to be of service to the organization he had served so long. He traveled extensively for a few years after his retirement and then made his home in Florida but spending considerable time in Chicago and in England.

This is an abstract and review of the beautiful obituary notice, published in the Journal of the American Medical Association—his journal and his association—the concluding sentence of which is: "The medical profession of the United States owes him a debt which it could never pay and which he never wished to collect."

HEART DISEASE RACKET

In the organization section of the Journal of the American Medical Association for July 3, 1937, page 1-B, is reported a fraud-scheme whereby policy holders are induced by racketeering lawyers to feign heart disease to collect under the disability clauses of their insurance policies. All sorts of schemes have been used to cause the individuals to have symptoms and other evidence of heart disease. Physicians, licensed and otherwise "build up" the cases. In some instances, there was a basis for the assumption of heart disease and these cases were usually played up to the limit. Many cases were successfully pursued even to getting a cash settlement and surrendering the policy.

All physicians should be apprised of this racket and be on their guard. Theoriginal article, written by Dr. O. F. Hedley, should be studied in detail.

The next annual inactive duty training period for medical reserve officers of the Army and Navy is to be held in Rochester, Minn., at the Mayo Clinic under the supervision of the Surgeon of the Seventh Corps Area (Army) and the Surgeon of the Ninth Naval District (Navy) from October 3 to 16th, inclusive.

The forenoons will be devoted to professional work—clinics in the hospitals—and the afternoons to military medicine and lectures on professional subjects. Distinguished visitors will give lectures in the evenings.

Military credits are given for attendance. Those who are interested in attending this post-graduate medical-military course should address Col. Kent Nelson, Medical Corps Surgeon, Headquarters Seventh Corps Area, Omaha, Nebr.

The Association of Military Surgeons of the United States is holding its 45th annual convention at the Hotel Ambassador, Los Angeles, Calif., October 14-16th, 1937. An interesting program has been arranged for these three

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days. The subjects for discussion are: "Fleet Medicine, Eyes in Aviation, Ears in Aviation, The Training of Medical Officers in A Major War Emergency, Physiotherapy in the Next War, Modern Typhoid Treatment, Hospital Ships in the World War: Lessons To Be Learned from Them, Anesthesia in Shock, Submarine Medicine, Emergency Plastic Surgery, The Blood Sedimentation Rate in Dental Infections, and The Medical Specialists Units, U. S. N. R."

Those who are eligible will find this an interesting meeting.

The Fifteenth Annual Meeting of the Academy of Physical Medicine will be held at the Hotel Walton, Philadelphia, October 19, 20, 21, 1937. The Academy, which is international in scope, will present a scientific program based on reports of the most recent research and practice of the various specialties. In addition to the lectures, demonstration clinics will be held at the hospitals of the University of Pennsylvania, Jefferson Medical College, and Temple Unviersity. A copy of the program may be had by addressing William D. McFee, M. D., chairman committee on program and publication, 41 Bay State Road, Boston, Mass.

BOOK REVIEW

SYNOPSIS OF DIGESTIVE DISEASE by John L. Kantor, Ph. D., M. D., Assoc. in Medicine, Columbia University; Gastroenterologist and Assoc. Roetgenologist, Montefiore Hosp. for Chronic Diseases, N. Y.; The C. V. Mosby Co.; St. Louis, Mo.; Price $3.50.

This is a pocket size book of 302 pages. It has much to commend it—especialy its convenient size. One can pick it up and read without being tired out physically, or having to have a desk to lay it upon. The subject matter is just what the title indicates and is an attempt upon the part of the author to present in a simple, clear, concise manner, the facts concerning the diseases of the digestive system. Physicians generally will find this a convenient, helpful volume.

SYNOPSIS OF GYNECOLOGY by Harry Sturgeon Crossen, M. D., F.A.C.S., Prof. Emeritus of Clinical Gynecology, Wash. University School of Med.; Gynecologist to the Barnes Hosp., St. Louis Maternity Hosp., and St. Luke's Hosp.; Consulting Gynecologist to DePaul Hosp. and the Jewish Hosp.; Fellow of the Am. Gynecological Society and of the Central Assoc. of Obstetricians and Gynecologists; and Robert James Crossen, M. D.; Asst. Prof. of Clinical Gynecology and Obstetrics, Wash. University School of Med.; Asst. Gynecologist and Obstetrician to the Barnes Hosp. and the St. Louis Maternity Hosp.; Gynecologist to St. Luke's Hosp. and to DePaul Hosp.; Fellow of the Central Assoc. of Obstetricians and Gynecologists; The C. V. Mosby Co.; St. Louis, Mo.; 1937.

In the field of gynecology, no name goes further than that of Crossen and in this handy volume of 247 pages, the Crossens have crowded a tremendous array of facts. The only criticism of the book is that the type is 8 point and rather closely lined for easy reading, especially for those of us who like to take these small volumes to bed with us and read by a small bedside light. The book is highly recommended.

A TEXT BOOK OF SURGICAL NURSING by Henry S. Brookes, Jr., M. D.; Instructor in Clinical Surgery, Washington University School of Medicine; Surgeon to the Out-Patients, Washington University Dispensary; Asst. Surgeon to Barnes Hospital; The C. V. Mosby Co.; St. Louis, Mo.; 1937; Price $3.50.

This book is written with the idea of coordinating the activities of the nurse and surgeon for the best interest of the patient. While it is based primarily upon the work in the Barnes Hospital, it will apply to the work in other hospitals. The book should be useful to physicians and especially to nurses.

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OBSTETRICS FOR NURSES, By Joseph B. DeLee, A.M., M.D., Prof. of Obstetrics and Gynecology, Emeritus, University of Chicago; Consultant in Obstetrics, Chicago Lying-in Hospital and Dispensary; Consultant in Obstetrics, Chicago Maternity Center; and Mable C. Carmon, R. N., Chief Supervisor and Instructor in the Birthrooms, Chicago Lying-in Hospital and Dispensary; W. B. Saunders Company; 1937; Philadelphia; Price $3.00.

This is the 11th edition of this handy volume. Thirty years ago the first edition was presented. This period of years is testimony of the value of this work. The illustrations are excellent. The language used in the text is such that a nurse of average training should be able to get the meaning with little or no help from her instructor. We have no hesitancy in recommending this for the use of nurses.

ALLERGIC DISEASES: THEIR DIAGNOSIS AND TREATMENT by Ray M. Balyeat, M. A., M. D., F.A.C.P., Assoc. Prof. of Medicine and Lecturer on Disease Due to Allergy, Univ. of Okla. Medical School; Chief of the Allergy Clinic, University Hosp.; Consulting Physician to St. Anthony's Hosp. and to the State University Hosp.; Pres. of the Assoc. for the Study of Allergy 1930-31; Director, Balyeat Hay Fever and Asthma Clinic; Assisted by Ralph Bowen, B.A., M.D., F.A.C.P., Chief of Pediatric Section Balyeat Hay Fever and Asthma Clinic, Oklahoma City, Okla.; F. A. Davis Company, Philadelphia, 1936.

Balyeat's reputation in the field of allergy has been established so firmly that his writing upon the subject is appreciated by practically all medical men.

This is a general treatise on the subject and presents not only the work on food allergy, but pollinosis, disturbances from dusts of all sorts and their relation to hayfever, asthma, etc.

An interesting feature of the book is the introduction of case reports to illustrate various types of allergy. He also has introduced recipes to show how elimination of common foods from the diet may be accomplished.

The book is nicely illustrated. For example on page 318 he has two human figures in silhouette, on the back of one he has the reactions from wheat, celery, egg, cantaloupe, etc., and from these to organs are drawn lines indicating that wheat caused conjunctivitis, celery sinusitis, cantaloupe bilary colic, egg asthma and celery urticaria. The publishers have done a commendable job in the printing.

PHYSICAL DIAGNOSIS by Don C. Sutton, M. S., M. D., Associate Prof. of Medicine, Northwestern University School of Medicine; Attending Physician and Chairman of the Medical Division of the Cook County Hospital; Chief of the Cardiac Clinic, Cook County Hospital, Chicago; Attending Physician, The Evanston Hospital; The C. V. Mosby Co., St. Louis, Mo.; 1937; Price $5.00.

This volume acquaints the student with the methods of examination of the patient by the use of the senses. It is well written, nicely illustrated and beautifully printed. Any physician will profit by reading it.

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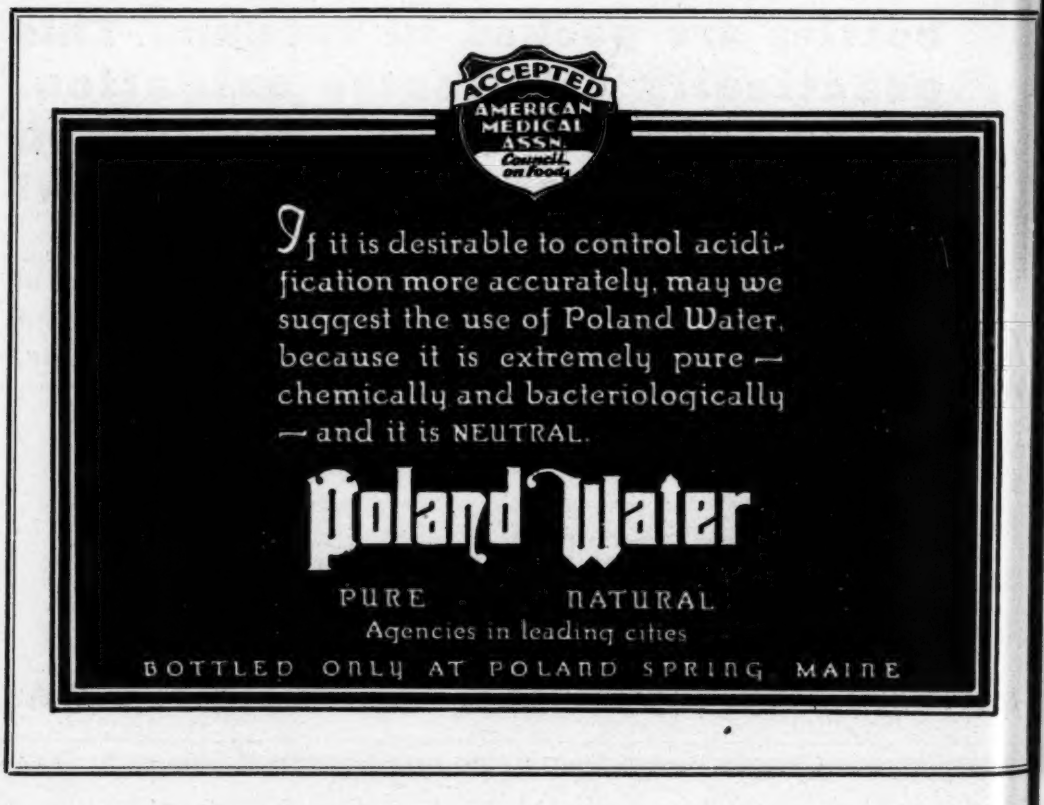
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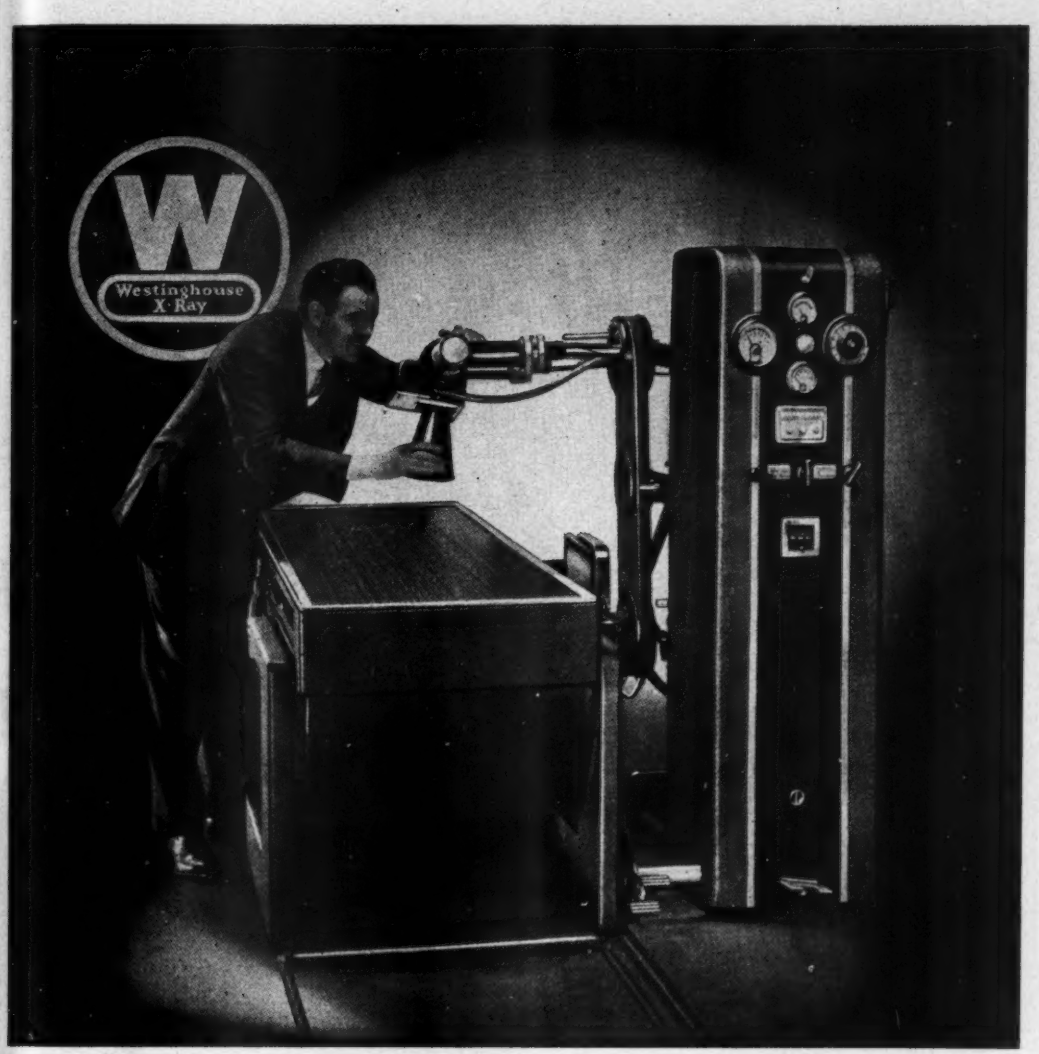

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TO AMERICA'S SCHOOLS—YOUR HEALTH!

Once more, during the coming fall, winter and spring, the **Voice of Medicine** will salute the people of America, with the toast "YOUR HEALTH"—the well-known title of the radio program of the **American Medical Association and the National Broadcasting Company**. The coming season will be the 5th; the first 2 years were devoted to health talks, and the last 2 seasons to dramatized health messages. This year, the salutation will be particularly to teachers and students in junior and senior high schools, hoping to be helpful in illustrating and enriching health teaching. The program will be on the air while schools are in session, so that it may be utilized directly in thousands of schools which now have or soon will have radio and public address systems reaching the class-rooms. Programs will be announced in advance in HYGEIA — **The Health Magazine.**

While the program is planned especially for high schools, it will not lack interest for listeners in the homes. The message of health education will have the familiar musical theme "HALE AND HEARTY," written especially for the program, and the toast, "To America's Schools—YOUR HEALTH!"

SOME CAUSES OF FOOT TROUBLE

By R. A. Hearne,
Prop. Health Spot Shoe Shop

Most authorities agree that better than seventy per cent of our population have weak feet. If this is true, then surely something must be wrong with the shoe industry. The problem of keeping normal feet from breaking down and straightening weak feet to normal posture seems to be misunderstood by many of the shoe profession.

Originally we walked on the ground without shoes, (it is interesting to note that in research work we have not found foot trouble with the feet that have never worn shoes). Then among the earliest types of shoes was the wooden Egyptian sandal, with a block heel, in either case, there was a solid support for the cuboid streamline or outer weight bearing part of the foot.

When we advanced to leather shoes, strong wooden shanks were first used, these still gave a good support to this outer weight bearing part of the foot.

Then later came various other methods of shoe construction, including flexible shanks, and many

INTERNATIONAL MEDICAL ASSEMBLY

Interstate Postgraduate Medical Association of North America

Public Auditorium, St. Louis, Mo. OCTOBER 18-19-20-21-22, 1937

Pre-assembly Clinics, October 16; Post-assembly Clinics, October 23, St. Louis Hospitals

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Waltman Walters, Rochester, Minn.
Philip D. Wilson, New York, N. Y.
Alan C. Woods, Baltimore, Md.
Hugh H. Young, Baltimore, Md.

FOREIGH ACCEPTANCES TO DATE:

Dr. Thomas C. Hunt, Londont, England.
Mr. W. Hugh Cowie Romanis, F.R.C.S., London, England.
Mr. Wilson H. Hey, F.R.C.S., Manchester, England.
Professor Nikolai Boordenko, University Surgical Clinic, Moscow, USSR.

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If you do not receive one, write the Managing-Director.
Comprehensive Scientific and Technical Exhibit. Special Entertainment for the Ladies.

shoes without shanks, indicating a complete misunderstanding of the problem of supporting the outer weight bearing parts of the foot. Only about 10% of the shoes made today are strong enough under the outer weight bearing or cuboid streamline of the foot.

Feet in Posture

In beginning the study of foot structure and its relation to the body we must first understand body balance; the center line of body balances passes through the hips, knees, ankles, and into the feet between the os calsis and cuboid bone. This cuboid bone is one of the most important in the arch structure of the foot, because it is the keystone of the weight bearing functions of the foot. When the weight bearing structure of the foot is out of alignment the body balance is disturbed, causing misallignment elsewhere and resulting in different bodily ailments.

The normal foot has definite weight bearing areas. Nature has provided for the protection of the necessary nerve cords and blood vessels of the foot by placing the main channels of nerve blood distribution in location where there is least pressure. We find the main nerve cord lying between and under the bones of the inner longitudinal arch of the foot which is the weight-bearing part in standing or walking is a less sensitive portion of the foot.

When feet are permitted to pronate (roll in) due to the saging of the cuboid and the oscalsis rolls outward causing the weight of the inner side, the nerve and blood supply is more or less "choked" off and sooner or later symptoms often mistaken for more serious trouble, set up.

There are two ways that these foot defects can be treated, one, and the best, is go bare-footed on sand or soft ground. This, however, is not practical for modern civilization, then the next best thing is wear a shoe that is built strong enough and heavy enough to hold the body weight and prevent the foot from rolling in. This shoe should be worn while doing work and when walking at least eight hours a day.

NEWS ITEMS

Dr. and Mrs. Charles W. Sult visited their son, Dr. Charles W. Sult, Jr., in Los Angeles during August.

Dr. W. A. Williamson, surgeon of C.C.C. at Manville Wells camp, Tucson, has recently resigned from that post.

Doctor Lewis A. W. Burtch has recently been notified of his election to active membership to The American Society of Anesthetists at the meeting held April 8, 1937, in New York City. This is an honor of no mean significance.

Dr. Thomas R. Wright, district surgeon of the C.C.C. Camp at Verde, Ariz., has recently resigned from that post.

Dr. W. Warner Watkins, president of the Pathological Laboratory in Phoenix, delivered an illustrated paper on "Bone Metabolism in Relation to Industrial Injury" at the Fifth International Congress on Radiology which met in Chicago, Sept. 13th to 17th.

Plans have been made for an extensive landscaping and beautification program on the hospital grounds at Fort Whipple. During the world war days when the hospital still was an army post, foundations were laid for construction of 4 additional wards; the cement foundations, unused for 20 years, were recently dynamited.

The Phoenix Gazette extended "Birthday Greetings" to Dr. James E. Drane, Maricopa county physician, in August.

Dr. and Mrs. H. J. Felch and their 2 children of Phoenix, spent a 5-week vacation, during which time they visited Alaska. Mrs. Felch and the children will remain in Denver until the opening of school.

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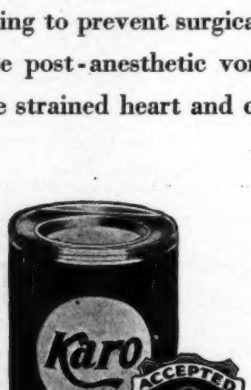
KARO enriches the glycogen reserves thereby helping to prevent surgical acidosis, decrease post-anesthetic vomiting, stimulate the strained heart and combat shock.



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